



# **Kentucky Public Pension Working Group**

## **Strategic Investment and Governance Review Final Recommendations**

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# I. Executive Summary

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## Executive Summary

### ***Background***

- In July 2008, the Kentucky Public Pension Working Group Investment Sub-Committee hired Hammond Associates Institutional Fund Consultants, Inc. (“Hammond Associates”) to conduct an operational and governance review and recommend new investment policies, strategies and benchmarks to improve the investment performance of the Kentucky Retirement Systems (“KRS”) and the Kentucky Teachers’ Retirement System (“KTRS”). The critical issues are summarized below:
  - Investment performance of both retirement systems has been unacceptable, significantly underperforming the actuarial assumed rate of return and their peer retirement systems across the country;
  - The governance structure responsible for investment oversight is inadequate;
  - The investment portfolio has insufficient diversification of asset classes;
  - The investment manager structure has concentrated positions, increasing risk.

### ***Recommendations***

- Based upon the results of our review, this report provides specific recommendations to address the four critical issues identified above. A summary of our recommendations follows on the next page.

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## Executive Summary

### ***Summary Recommendations:***

- Change the charter and composition of the investment committee of both retirement systems to upgrade the investment expertise available for oversight of the investment process.
- Consider forming one investment advisory committee with oversight responsibility for both retirement systems.
- Develop a new investment policy to broadly diversify both retirement systems' assets among traditional and alternative asset classes.
- Review the investment manager structure for poor performing managers and reduce the concentrated positions to more reasonable levels.
- Eliminate or amend administrative regulations that currently add unnecessary bureaucratic processes to the effective management of the KTRS investment portfolio.
- Review the Freedom of Information Act for limitations on implementing diversified portfolios.

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## II. Operational Review Observations

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## Operational Review Observations

### ***Background***

- The legislative and executive branches of the Commonwealth of Kentucky sensed that a problem existed with KRS and KTRS. The most obvious manifestation of this problem to the legislators was that investment returns for each fund seemed low. For the 1, 3, 5 and 10-year periods ending June 30, 2008, the KRS pension fund had produced returns of -4.2%, 6.6%, 8.5% and 5.6%, respectively, compared to an actuarial assumed rate of return of 7.75%. The returns for KTRS for the same periods were -5.8%, 4.6%, 6.2% and 4.5%, respectively, compared to an actuarial assumed rate of return of 7.5%.
- Two possible explanations for this performance exist. First, it was possible that similar funds had performed as poorly and that no reasonable changes could have altered the situation. It was also possible that a good portion of the investment world had changed their approach and that KRS and KTRS had not kept up with the changes. Based upon our review, it appears the investment community has changed their approach.
- The Commonwealth of Kentucky embarked upon a project to protect the assets of its retirement systems and decided to engage an independent firm to assist with the analysis of the problems. Hammond Associates responded to the request for proposal and was subsequently hired to conduct an operational and governance review.

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## Operational Review Observations *(continued)*

### ***Hammond Associates Overview***

- Hammond Associates is an investment consulting firm located in St. Louis, Missouri. The firm has over 200 clients with assets of approximately \$57 billion.
- Two-thirds of Hammond Associates' clients are endowments and foundations. The mission and objectives of this group of clients is comparable in many ways to public retirement plans. Foundations and endowments also have a well-deserved reputation as thought leaders in the field of investment policy.
- The firm currently advises \$25 billion of retirement plan assets which is an important and growing portion of Hammond Associates' clientele. One of these clients is a police officers retirement system with assets of approximately \$3.5 billion. Another is a state teachers retirement plan with assets of approximately \$15 billion.
- Given the significance of the Kentucky Public Pension Plan Working Group Investment Sub-Committee assignment, Hammond Associates appointed two principal consultants who have a significant amount of experience with retirement fund issues.
  - Jerry Woodham was Chief Investment Officer for the San Diego County Pension System for the period 2001-2003. This plan had assets of \$5 billion when Mr. Woodham left at the end of 2003.
  - Rich Marra was the Assistant Treasurer and Director of Pension Investments with Smurfit-Stone Container Corporation from 1990 through 2005. He was responsible for setting policy and strategy for their retirement plan assets which exceeded \$4 billion.

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## Operational Review Observations *(continued)*

### **Peer Ranking**

- We compared returns for both KRS and KTRS to the Russell Mellon Public Plans Greater than \$1 Billion universe. For the 1, 3, 5 and 10-year periods ending June 30, 2008, KRS ranked in the 2nd, 3rd, 4th and 3rd quartile, respectively. More specifically, for the 10-year period, KRS returned 5.6% compared to the the median of 6.6% and 75th percentile of 5.0%. For the same time periods, KTRS ranked in the 4th quartile for all measured periods. The KTRS return for the 10-year period was 4.5% compared to the 6.6% median.

### **Risk**

- While historical market return studies point out that high levels of U.S. equity market exposure benefit long-term investors, the related risks are less obvious. Significant concentrations in a single asset class poses extraordinary risk to portfolio assets. Fortunately, diversification provides investors with a strong risk management tool. From October 1, 2007 through September 30, 2008, the performance of various asset classes over the 1-year and 10-year period are highlighted below.

	1-Year	10-Year
S&P 500	-22.1%	3.1%
Russell 2000	-14.5%	7.8%
International Equity	-30.5%	5.0%
Emerging Market Equity	-33.2%	14.5%
Lehman Aggregate	3.7%	5.2%
World Bond Index	5.9%	5.4%

	1-Year	10-Year
U.S. TIPS	6.2%	7.1%
Commodities	-3.7%	10.0%
Hedge Fund of Funds	-10.2%	6.6%
Real Estate	5.5%	11.8%
Timber	15.5%	9.2%

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## Operational Review Observations *(continued)*

### ***Risk (continued)***

- By combining assets that move in different directions in response to market forces, more efficient portfolios can be built. At a given level of risk, properly diversified portfolios provide higher returns than less diversified portfolios. Conversely, through appropriate diversification, a given level of returns can be achieved at a lower risk. Professor Harry Markowitz, known for his pioneering work in modern portfolio theory, maintains that investment portfolio diversification provides the only “free lunch” available for investors, since risk can be reduced without sacrificing return.
- As of June 30, 2008, KTRS had 55% of the total portfolio allocated to the U.S. equity market and 86% of the total equity portfolio allocated to the U.S. equity market. This outsized exposure of more than one half of the portfolio invested in the U.S. equity market violates sensible diversification principles. Committing more than 50% of a portfolio to a single asset class exposes the investor to the preventable risk of large losses. By establishing an investment policy with a variety of asset classes that move at different times and in different directions, investors diminish the risk that a concentrated exposure to a single market will cause material damage.
- Our asset allocation model compared the KTRS investment portfolio against the median public plan portfolio in the Russell Mellon universe. The KTRS portfolio had lower expected return and higher risk across all metrics including: higher standard deviation, a greater probability of a loss year, a higher probability of a 10% or worse loss, greater value at risk, a lower Sharpe Ratio and a lower probability of reaching the 7.5% return objective.

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## Operational Review Observations *(continued)*

### **Opportunity Cost**

- Hammond Associates calculated the cost of below median performance for KRS and KTRS for the 10-year period ended June 30, 2008. This “opportunity cost” was determined by comparing the fiscal year return with the median return for the Russell Mellon universe and applying the return to the prior year’s market value. Based on this analysis, the opportunity cost for KRS Pension was \$1.5 billion and KTRS was \$3.5 billion for the 10 years ending June 30, 2008. If the funds had provided median returns over this period, the market value of assets would have been higher by the amount of the opportunity cost, all other variables held constant. *Note: Individual fiscal year calculations were compounded to determine the final opportunity cost. See section VI for the complete analysis.*

### **Possible Causes of Below Median Returns**

- When returns for one member of a group of similar funds are below or above median, it is useful to examine the possible causes. These causes fall into one of two areas, either asset allocation impact or manager impact. For the 10-year period ended June 30, 2008, manager returns for both systems have generally been above median. Asset allocation for KRS and KTRS has differed substantially from the median. Therefore, the key differences in return must be attributed to differences in asset allocation. The differences in asset allocation lie in two primary areas. First, KRS and KTRS have held a higher allocation to U.S. equity and a lower allocation to international equity than the median fund. KRS now has an allocation which is comparable to the median fund. Second, both funds have had a lower allocation to alternative assets than the median fund.

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## Operational Review Observations *(continued)*

### ***Value of Peer Rankings***

- KTRS has indicated that they and their consultants feel that peer comparisons have, at best, limited usefulness. Hammond Associates would agree that over the short-term, peer comparisons could be less useful. During short-term periods (1-2 years), investment strategies and managers may produce returns that are not indicative of their long-term potential. However, over a longer time frame (5-10 years), if a fund ranks in the 3rd or 4th quartile of peer institutions, it seems fair to ask questions about what other funds are doing that your fund is not. There may be changes in managers or asset class valuations that could be beneficial to the fund. Since 1990, institutional investors have increased allocations to international equity and alternative assets while reducing reliance on U.S. equity and fixed income. Both KRS and KTRS do not utilize peer rankings and to varying degrees have not participated fully in this trend. KRS introduced TIPS, international equity and alternative assets to the portfolio in 2001, but still reacted more slowly than we think necessary. KTRS introduced international equity in 2006 and introduced alternative assets in 2008. KTRS has a high concentration of U.S. equity in the portfolio today.

### ***Governance Structure***

- The value of a high quality investment committee providing senior level oversight cannot be underestimated. Both the composition and the size of the investment committees at KRS and KTRS have contributed to the underperformance of both retirement systems' investments.

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## Operational Review Observations *(continued)*

### **Governance Structure *(continued)***

- While there is no magic bullet regarding the correct number of members for an investment committee, both KRS and KTRS appear too small. We recommend a 7-9 member committee. KRS has a 5 member committee and requires no specific investment background in order to be a member. The committee structure for KTRS requires only three members, including the Executive Secretary. It is unusual for the Executive Secretary to be a voting member. In addition to committee size, one can reasonably raise a question about the qualification requirements for committee members. Many of the funds in our survey require that some committee members have investment background and experience. The Virginia Retirement System (“VRS”) goes one step further and is mentioned as a model for larger public funds. VRS requires that four of their nine board members must be investment experts. To further ensure that the proper talent is brought to bear on investment issues, VRS utilizes an Investment Advisory Committee, which supports and advises their Board of Trustees in matters of investment policy, asset allocation and manager selection. All Investment Advisory Committee members must be investment experts and are selected by the board and CIO. Finally, we compared the composition of the Boards of the systems’ peers, in an attempt to determine whether funds which required that some level of investment expertise be present with board or committee members resulted in better investment decisions. Returns for the five years ending June 30, 2007 were analyzed. Funds in the top quartile for that period were compared with those in the bottom quartile. The results of this analysis were not 100% consistent with our expectations, but were suggestive that perhaps we were on the right track.

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## Operational Review Observations *(continued)*

### **Governance Structure *(continued)***

- We had only the fund's stated requirements to analyze and could not interview each member to determine their true level of expertise. However, in the top quartile, 5 of the 12 funds required that some level of investment talent be evidenced. In the bottom quartile, only 2 of the 12 funds had the same requirement. We cannot prove cause and effect with these results. However, common sense would indicate that this is a step in the right direction. The objective is to increase the probability of success in meeting long-term investment objectives. Seeking talented and investment savvy board or committee members is consistent with improving this probability.

### **Social Security**

- KTRS members do not participate in Social Security. KTRS believes this is a rare situation. Our research shows that 11 of the 47 retirement systems presented in the universe on page 30 indicated that their members do not participate in Social Security. 9 of the 11 non-participating systems are education employee-specific plans. For the 3, 5 and 10-year periods ended June 30, 2007, KTRS was the worst performing plan in this subset universe. KTRS further states that opting out of Social Security creates a situation in which the fund must be managed more conservatively than if Social Security was available to members. While the need to be more cautious may be reasonable, it raises the question as to which type of risk the fund should try to minimize. We compared risk, as measured by standard deviation of returns, for both systems and found that for the 3 and 5-years ended June 30, 2008, the returns were less volatile than the Russell Mellon universe, but not materially.

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## Operational Review Observations *(continued)*

### ***Social Security (continued)***

- More importantly, an analysis of forecasted returns and risk comparing the target allocation for both KRS and KTRS with more diversified portfolios containing larger allocations to international equity and alternative assets reveals that both KRS and KTRS have lower projected returns and higher levels of risk. The risk metrics included standard deviation, probability of a loss year, probability of a 10% or worse loss, lowest likely one year return and the probability of achieving target returns. Both portfolios, due to an overweighting of U.S. equity vs. international equity and a lower allocation to alternative assets, will likely present a higher risk situation instead of the lower risk that KTRS prefers. *See section VII for further analysis.*

### ***Executive Investment Committee Structure***

- It has been suggested that KTRS and KRS may consider an executive investment committee structure in which one single committee would support and advise both Boards of Trustees in matters of investment policy, asset allocation and manager selection, much as VRS does. While this is one form of governance may seem attractive, it is clearly not the only option. It is entirely possible that both funds could adopt enlightened policies and function much more effectively as separate entities than they have in the past. Under assumptions regarding scarce investment talent at the board level, it is also possible that support would grow for a single board. We feel it is inappropriate for us to state a preference for one committee versus two committees, when both forms have the potential for success. This is an issue that the Working Group Sub-Committee as a whole must address.

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## Operational Review Observations *(continued)*

### ***Funding Policy***

- While the funding policy was outside the scope of this Working Group Sub-Committee, we noted that the funded ratio for the five funds managed by KRS ranged from 83.6% to 56.9% and the funded ratio for KTRS was 71.9% as of June 30, 2007. While active and retired teachers have a statutory fixed employer contribution rate, the General Assembly can change this through legislation at any time. The timing of contributions has no adverse impact on the performance of retirement fund assets as long as the investments are made in accordance with a sound investment policy which has been approved by the investment committee. Adverse consequences occur when contributions are not made in accordance with the investment policy.

### ***Administrative Regulations***

- The KTRS' Executive Secretary testified that his board is impaired by regulations that prohibit broad investments in various asset classes. However, those regulations have been imposed on KTRS by the KTRS board. The process of establishing an investment policy based upon the "prudent man" standard currently within statutes provides the fiduciaries of the retirement systems with the necessary guidelines to make appropriate decisions regarding investment policy.

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## III. Recommendations

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## Recommendations

### ***Recommendation 1:***

***Change the charter and composition of the investment committee of both retirement systems in order to upgrade the investment expertise available for oversight of the investment process.***

- The investment committee should possess the following characteristics:
  - Minimum of seven members
  - Investment expertise required (as defined on page 22)
  - Commitment to participate in continuing educational programs and conferences
- The investment committee member selection process should be established by the Working Group Investment Sub-Committee, or its designee.
- The selection process should commence immediately.

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## Recommendations *(continued)*

### ***Recommendation 1A:***

***Form one investment advisory committee with oversight responsibility for both retirement systems (an Executive Investment Committee).***

- The Executive Investment Committee should possess the following characteristics:
  - Oversight responsibilities for both retirement systems
  - Minimum of nine members
  - Investment expertise required (as defined on page 22)
  - Commitment to participate in continuing educational programs and conferences
- The investment committee member selection process should be established by the Working Group Investment Sub-Committee, or its designee.
- The selection process should commence immediately.

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## Recommendations *(continued)*

### ***Definition of Investment Expertise:***

#### ***Investment experience has been defined by similar plans as the following:***

- An individual with at least ten years substantial experience as any one or a combination of the following that also poses no conflict of interest:
  - A portfolio manager acting in a fiduciary capacity
  - A securities analyst
  - A current or retired employee or principal of a trust institution, investment organization or endowment fund acting either in a management or an investment related capacity.
  - A chartered financial analyst in good standing as determined by the CFA Institute
  - A professor at the university level, teaching economics or investment related subjects
  - An economist
  - Any other professional engaged in the field of public or private finances

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## Recommendations *(continued)*

### ***Recommendation 2:***

#### ***Conduct an investment policy review.***

- Asset mix should be broadly diversified among traditional and alternative asset classes.
- The critical items to be reviewed would include:
  - Time horizon
  - Risk tolerance
  - Return objective
  - Policy asset mix and related benchmarks (peer universe)
  - Rebalancing policy
  - Portfolio risk characteristics
  - Investment manager structure and related benchmarks
  - Conflict of interest policy
- The policy review should be conducted by the new investment committee, the CIO and the investment consultant.

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## Recommendations *(continued)*

### ***Recommendation 3:***

#### ***Reduce investment manager concentrations in the KRS and KTRS portfolio.***

- Limit manager positions to 10% of the market value of the fund.
- As of June 30, 2008, KRS Pension Fund holds an outsized allocation to Pyramis Global Investors (12.7%) across 2 products.
  - KRS also internally manages an S&P 1500 indexed fund (22.8%).
- As of June 30, 2008, KTRS holds an outsized allocation to Todd Investment Advisors (25.0%) across 5 products.
  - KTRS also internally manages an S&P 500 indexed fund (20.5%).

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## Recommendations *(continued)*

### ***Recommendation 4:***

#### ***Conduct a formal review of the administrative regulations of KTRS.***

- Regulations which impair the ability of the investment committees to construct, implement and monitor efficient investment portfolios should be modified or amended as necessary.
- The review should be conducted by members of the Working Group Investment Sub-Committee, or its designee, and commence immediately.
- The “prudent man” standard currently within the statutes provides the fiduciaries of the retirement systems with the necessary guidelines to make the appropriate decisions regarding investment policy.

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## Recommendations *(continued)*

### ***Recommendation 5:***

***Conduct a formal review of the requirements under Kentucky's Freedom of Information act.***

- Strict Freedom of Information Act regulations impede access to top tier private equity funds and must be addressed to implement a broadly diversified portfolio.
- All public retirement systems with alternative asset allocations face this issue.
- Regulations which impair the ability of the investment committees to construct, implement and monitor efficient investment portfolios should be modified or amended, if applicable.
- The review should be conducted by members of the Working Group Investment Sub-Committee, or its designee, and commence immediately.
- Hammond Associates recommends the Working Group Investment Sub-Committee seek legal advice for specific guidance.

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## IV. Portfolio Performance

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## Portfolio Performance – Introduction

- Trailing period returns for both KRS and KTRS were compared to both a custom peer universe and a Russell Mellon universe.
- KRS and KTRS were compared to a custom universe of all state pension plans with asset greater than \$5 billion, publicly available return data, and a fiscal year ending June 30<sup>th</sup>.
  - The universe contains 47 funds with \$1.73 trillion in total assets.
  - The average size of a fund in the universe is \$36.9 billion.
- The other benchmark used for comparison purposes was the Russell Mellon Public Funds Greater than \$1 Billion universe.
  - The universe contains 58 funds with \$944 billion in total assets.
  - The average size of a fund in the universe is \$16.3 billion.
- Both KRS and KTRS have underperformed their peers over the past ten years when compared to either universe.

# Public Pension Plan Return Data – Custom Peer Universe

System	Assets	Period Ending June 30, 2007			
		1-Year	3-Year	5-Year	10-Year
Pennsylvania Public School Employees Retirement System	\$67,340,997	22.9%	16.9%	14.5%	NA
Louisiana Teachers Retirement System	16,148,730	19.7%	15.0%	14.0%	9.7%
Washington Department of Retirement Systems	69,059,082	21.3%	17.0%	14.0%	NA
South Dakota Retirement System	8,158,169	21.4%	15.9%	13.8%	10.3%
Oregon Employees Retirement System	62,891,942	18.6%	15.6%	13.4%	NA
Missouri State Employees Retirement System	8,129,174	18.7%	14.2%	13.3%	9.2%
Ohio State Teachers Retirement System	72,935,433	20.7%	15.5%	13.2%	NA
California State Teachers Retirement System	172,377,918	21.0%	15.1%	13.1%	NA
California Public Employees Retirement System	251,122,682	19.1%	14.6%	12.8%	9.1%
Idaho Public Employee Retirement System	11,257,959	20.0%	14.3%	12.8%	NA
Oklahoma Teachers Retirement System	9,651,042	18.5%	12.8%	12.8%	NA
Virginia Retirement System	56,890,203	20.4%	14.9%	12.8%	NA
Louisiana State Employees Retirement System	9,351,148	19.2%	13.7%	12.6%	NA
Illinois Teachers Retirement System	41,909,318	19.2%	13.9%	12.5%	9.1%
New York State Teachers Retirement System	104,912,949	19.3%	13.8%	12.3%	8.8%
Kansas Public Employees Retirement System	14,183,073	18.0%	14.1%	12.3%	8.8%
Arkansas Teachers Retirement System	11,636,935	19.1%	14.0%	12.1%	NA
Minnesota Teachers Retirement Association	19,938,882	18.5%	14.0%	12.0%	8.5%
Illinois State Universities Retirement System	15,985,730	18.3%	13.4%	11.9%	8.5%
Minnesota Public Employees Retirement Association	16,718,662	18.3%	13.8%	11.9%	8.3%
Minnesota State Retirement System	15,214,339	18.3%	13.8%	11.9%	NA
Indiana Public Employees Retirement Fund	17,181,295	18.2%	12.8%	11.8%	NA
Arkansas Public Employees Retirement System	5,970,244	18.1%	13.3%	11.7%	NA
Ohio School Employees Retirement System	11,546,062	18.7%	13.8%	11.7%	8.2%
New Mexico Public Employees Retirement Association	13,616,098	18.1%	13.2%	11.7%	NA
Hawaii Employees Retirement System	11,462,417	17.7%	13.3%	11.7%	NA
Indiana State Teachers Retirement Fund	8,987,744	18.2%	12.9%	11.6%	NA
Iowa Public Employees Retirement System	23,217,168	16.3%	12.9%	11.6%	9.0%
Alaska Public Employees Retirement System	7,439,387	18.9%	13.1%	11.5%	NA
Florida Retirement System	134,317,778	18.1%	12.9%	11.5%	8.5%
Delaware Public Employees Retirement System	7,413,370	15.9%	12.7%	11.5%	9.0%
Mississippi Public Employees Retirement System	21,912,350	18.9%	13.1%	11.4%	NA
Maine State Retirement System	11,023,021	16.2%	11.8%	11.4%	7.7%
Maryland State Retirement and Pension System	39,444,781	17.6%	12.4%	11.3%	7.2%
Texas Employees Retirement System	24,460,276	13.9%	11.8%	11.2%	NA
Arizona State Retirement System	28,475,997	17.8%	11.9%	11.0%	8.4%
Oklahoma Public Employees Retirement System	6,640,477	16.4%	11.6%	10.9%	NA
Illinois State Employees Retirement System	12,078,909	17.1%	12.6%	10.8%	NA
Missouri Public Schools Retirement System	31,964,843	16.6%	11.8%	10.5%	NA
<a href="#">Kentucky Retirement Systems</a>	<a href="#">14,228,184</a>	<a href="#">15.3%</a>	<a href="#">11.4%</a>	<a href="#">10.4%</a>	<a href="#">8.1%</a>
North Carolina Retirement Systems	75,953,334	14.8%	10.6%	10.3%	NA
Nevada Public Employees Retirement System	22,701,360	15.0%	11.0%	10.0%	7.9%
South Carolina Retirement Systems	28,048,780	13.4%	8.6%	8.8%	7.0%
Georgia Employees Retirement System	17,516,903	14.7%	9.5%	8.5%	NA
Georgia Teachers Retirement System	53,133,101	NA	9.5%	8.5%	NA
<a href="#">Kentucky Teachers Retirement System</a>	<a href="#">15,492,519</a>	<a href="#">15.2%</a>	<a href="#">9.3%</a>	<a href="#">8.5%</a>	<a href="#">7.1%</a>
Tennessee Consolidated Retirement System	32,365,969	13.2%	9.1%	8.3%	NA
High		22.9%	17.0%	14.5%	10.3%
Mean		17.9%	13.0%	11.7%	8.5%
Median		18.3%	13.2%	11.7%	8.5%
Low		13.2%	8.6%	8.3%	7.0%

*Source: Comprehensive annual financial report published by each represented system for the period ending June 30, 2007.*

*Notes: Returns shown for Kentucky Retirement Systems represent only the returns for the Pension Fund. Plans are ranked according to their 5-year performance.*

## Public Pension Plan Return Data – Plans Not Covered by Social Security

- The table below shows return data for the systems contained in the peer universe on the previous page whose members do not participate in Social Security.
- For the 3, 5 and 10-year periods ending June 30, 2007, KTRS was the worst performing plan in this universe.

System	Assets	Period Ending June 30, 2007			
		1-Year	3-Year	5-Year	10-Year
Louisiana Teachers Retirement System	16,148,730	19.7%	15.0%	14.0%	9.7%
Ohio State Teachers Retirement System	72,935,433	20.7%	15.5%	13.2%	NA
California State Teachers Retirement System	172,377,918	21.0%	15.1%	13.1%	NA
Louisiana State Employees Retirement System	9,351,148	19.2%	13.7%	12.6%	NA
Illinois Teachers Retirement System	41,909,318	19.2%	13.9%	12.5%	9.1%
Illinois State Universities Retirement System	15,985,730	18.3%	13.4%	11.9%	8.5%
Ohio School Employees Retirement System	11,546,062	18.7%	13.8%	11.7%	8.2%
Maine State Retirement System	11,023,021	16.2%	11.8%	11.4%	7.7%
Missouri Public Schools Retirement System	31,964,843	16.6%	11.8%	10.5%	NA
Nevada Public Employees Retirement System	22,701,360	15.0%	11.0%	10.0%	7.9%
<a href="#">Kentucky Teachers Retirement System</a>	<a href="#">15,492,519</a>	<a href="#">15.2%</a>	<a href="#">9.3%</a>	<a href="#">8.5%</a>	<a href="#">7.1%</a>
High		21.0%	15.5%	14.0%	9.7%
Mean		18.2%	13.1%	11.8%	8.3%
Median		18.7%	13.7%	11.9%	8.2%
Low		15.0%	9.3%	8.5%	7.1%

- According to the National Education Association, of the 98 plans in which education employees participate, 22% of the plans are those in which “Few/None” of the members are covered by Social Security
- According to the same survey only 58% of the plans are categorized as having “All” members covered.

*Source: Comprehensive annual financial report published by each represented system for the period ending June 30, 2007.*

*Note: Plans are ranked according to their 5-year performance.*

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## Portfolio Performance – KRS Pension Fund

	Period Ending June 30, 2008			
	1-Year	3-Year	5-Year	10-Year
<b><i>KRS Pension Fund</i></b>	<b>-4.2%</b>	<b>6.6%</b>	<b>8.5%</b>	<b>5.6%</b>
Median Return	-4.3%	8.4%	10.7%	6.6%
Excess Return	0.1%	-1.8%	-2.2%	-1.0%
Quartile Ranking	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	3 <sup>rd</sup>

- KRS Pension Fund returns have ranged between the second and fourth quartiles of the Russell Mellon Public Pension Plan Greater than \$1 Billion Universe over the last 1, 3, 5 and 10-year periods ending June 30, 2008.
- Peer performance has improved recently, ranking in the second quartile of the Russell Mellon universe over the past year.
- Over the past ten years the KRS Pension Fund has underperformed the median return for the Russell Mellon universe by 100 basis points.
- The underperformance relative to the universe median represents an opportunity cost of approximately \$1.5 billion in lost returns which could have been added to the Fund's asset base.
- The KRS Pension Fund has an actuarial assumed rate of return of 7.75%.

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## Portfolio Performance – KRS Insurance Fund

	Period Ending June 30, 2008			
	1-Year	3-Year	5-Year	10-Year
<b><i>KRS Insurance Fund</i></b>	<b>-7.9%</b>	<b>7.3%</b>	<b>10.1%</b>	<b>5.5%</b>
Median Return	-4.3%	8.4%	10.7%	6.6%
Excess Return	-3.6%	-1.1%	-0.6%	-1.1%
Quartile Ranking	4 <sup>th</sup>	3 <sup>rd</sup>	3 <sup>rd</sup>	3 <sup>rd</sup>

- KRS Insurance Fund returns have been either in the third or fourth quartile of the Russell Mellon universe over the last 1, 3, 5 and 10-year periods ending June 30, 2008.
- Over the past ten years the KRS Insurance Fund has underperformed the median return for the Russell Mellon universe by 110 basis points.
- The KRS Insurance Fund has an actuarial assumed rate of return of 7.75%.

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## Portfolio Performance – KTRS

	Period Ending June 30, 2008			
	1-Year	3-Year	5-Year	10-Year
<b>KTRS</b>	<b>-5.8%</b>	<b>4.6%</b>	<b>6.2%</b>	<b>4.5%</b>
Median Return	-4.3%	8.4%	10.7%	6.6%
Excess Return	-1.5%	-3.8%	-4.5%	-2.1%
Quartile Ranking	4 <sup>th</sup>	4 <sup>th</sup>	4 <sup>th</sup>	4 <sup>th</sup>

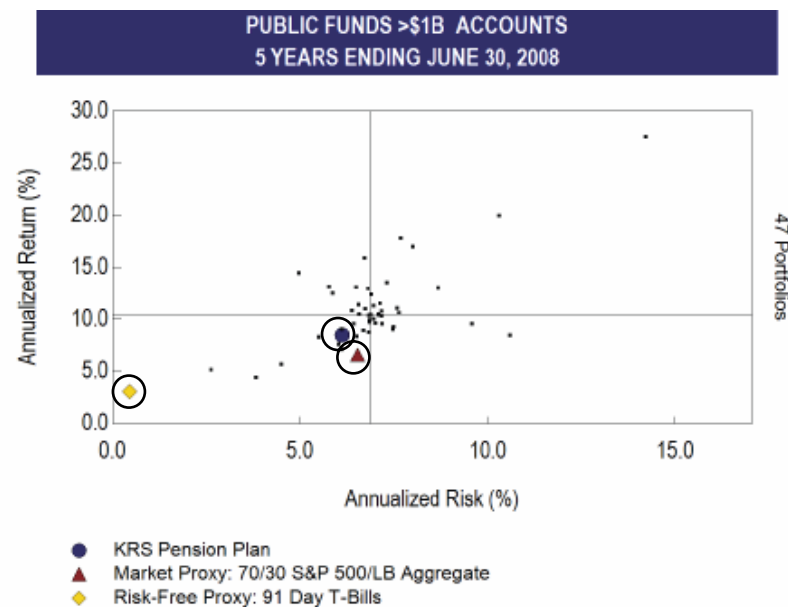
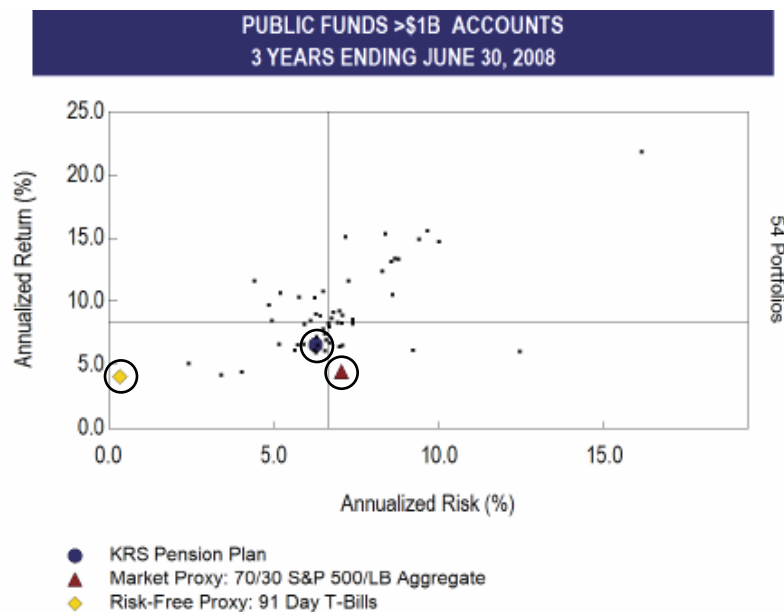
- Kentucky Teachers' Retirement Systems' returns have ranked in the fourth quartile of the Russell Mellon Public Pension Plan Greater than \$1 Billion Universe over the last 1, 3, 5 and 10-year periods ending June 30, 2008.
- Over the past ten years KTRS has underperformed the median return for the Russell Mellon universe by 210 basis points.
- The underperformance relative to the universe median represents an opportunity cost of approximately \$3.5 billion in lost returns which could have been added to the Fund's asset base.
- KTRS has an assumed actuarial rate of return of 7.5%.

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## Peer Ranking Analysis

- The key metric in performance measurement is the long-term target return.
- Pension plans cannot manage with top quartile performance as the goal. Top quartile performance is the result of good management.
- Peer rankings provide some insight as to what similar institutional investors are doing.
- Consistently low peer rankings, at a minimum, should serve as notice to review both your policy and the policies of the top performing funds (long-term).

## Risk/Return Profile – KRS Pension Plan vs. Public Funds > \$1b



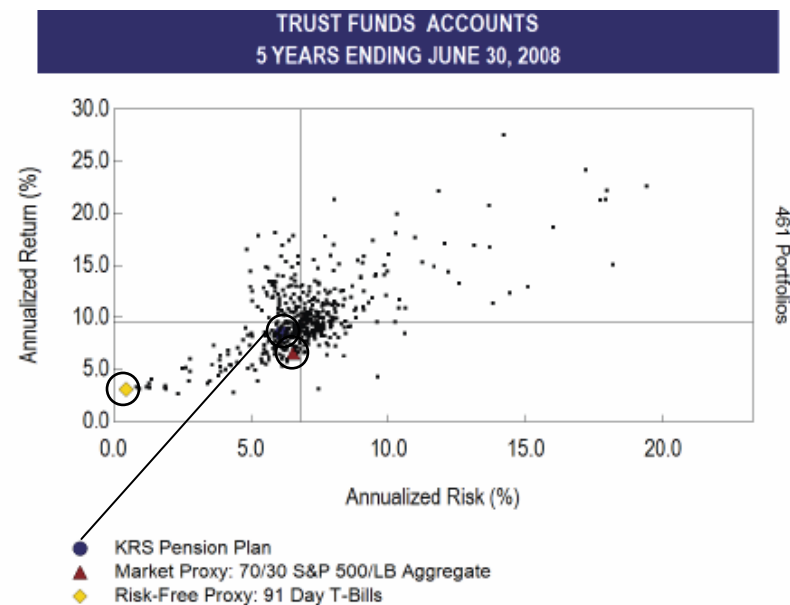
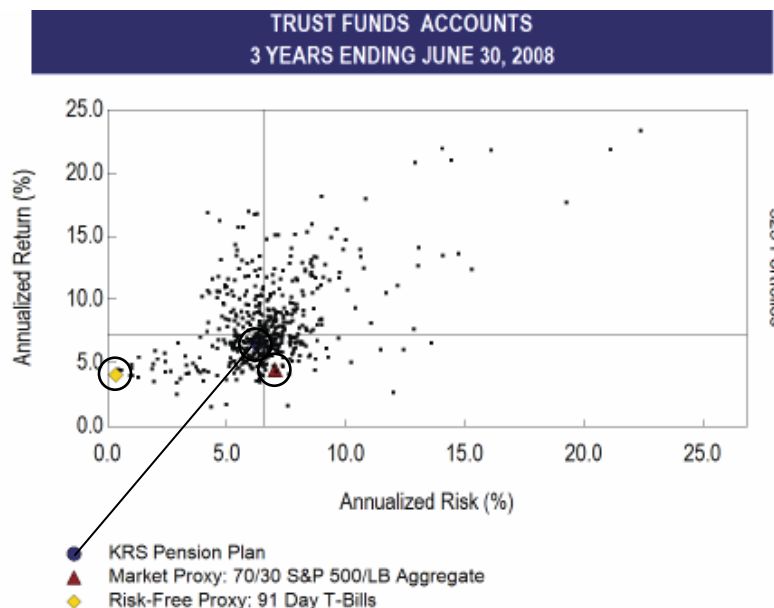
### Risk vs. Return for 3 Years Ending June 30, 2008

Rank within Public Funds >\$1B (peer)	Annualized Return	Percentile Rank	Standard Deviation
KRS Pension Plan	6.6%	77	6.3%
70/30 S&P 500/LB Aggregate	4.5%	98	7.0%
Median for this Universe	8.4%		6.7%

### Risk vs. Return for 5 Years Ending June 30, 2008

Rank within Public Funds >\$1B (peer)	Annualized Return	Percentile Rank	Standard Deviation
KRS Pension Plan	8.5%	85	6.1%
70/30 S&P 500/LB Aggregate	6.6%	95	6.5%
Median for this Universe	10.4%		6.8%

# Risk/Return Profile – KRS Pension Plan vs. Total Plan Universe



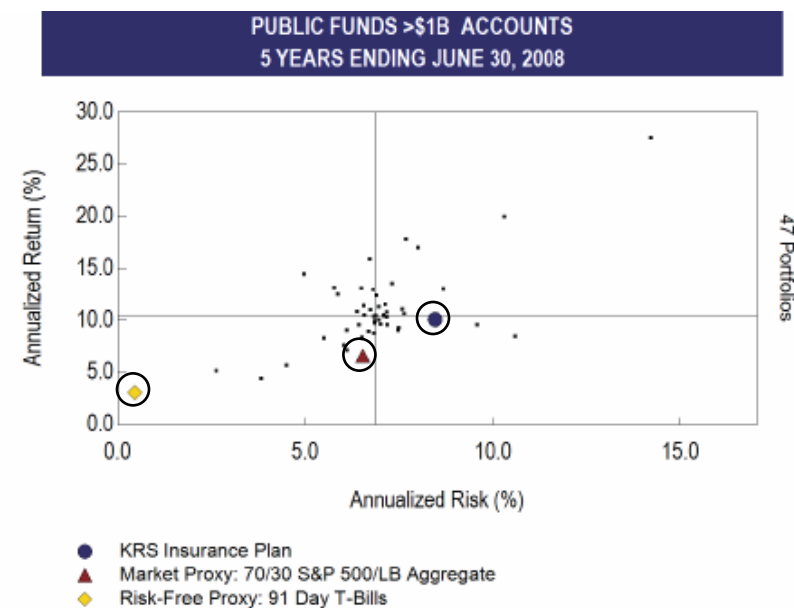
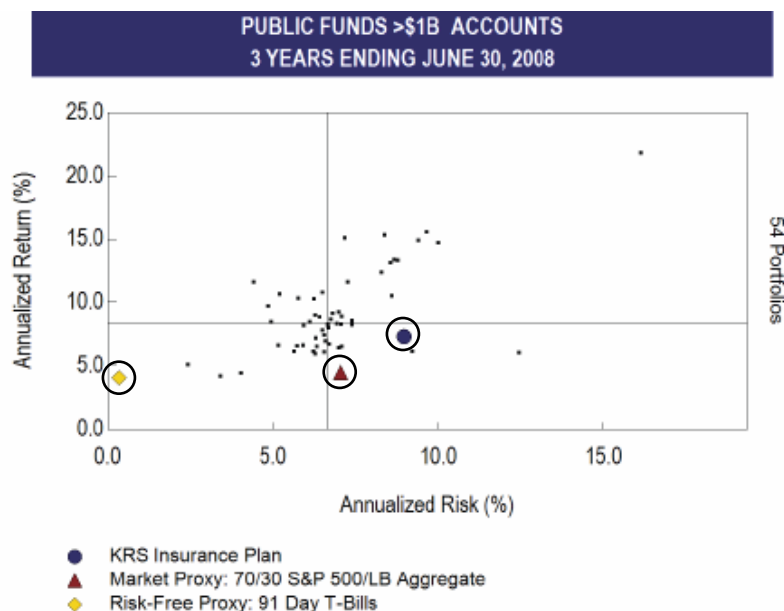
## Risk vs. Return for 3 Years Ending June 30, 2008

Rank within Trust Funds (peer)	Annualized Return	Percentile Rank	Standard Deviation
KRS Pension Plan	6.6%	62	6.3%
70/30 S&P 500/LB Aggregate	4.5%	93	7.0%
Median for this Universe	7.2%		6.6%

## Risk vs. Return for 5 Years Ending June 30, 2008

Rank within Trust Funds (peer)	Annualized Return	Percentile Rank	Standard Deviation
KRS Pension Plan	8.5%	69	6.1%
70/30 S&P 500/LB Aggregate	6.6%	89	6.5%
Median for this Universe	9.5%		6.8%

## Risk/Return Profile – KRS Insurance Plan vs. Public Funds > \$1b



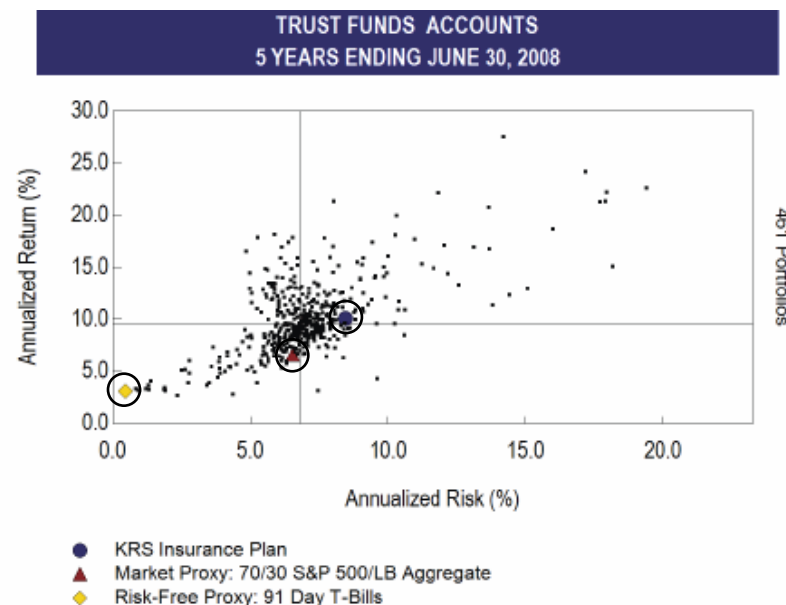
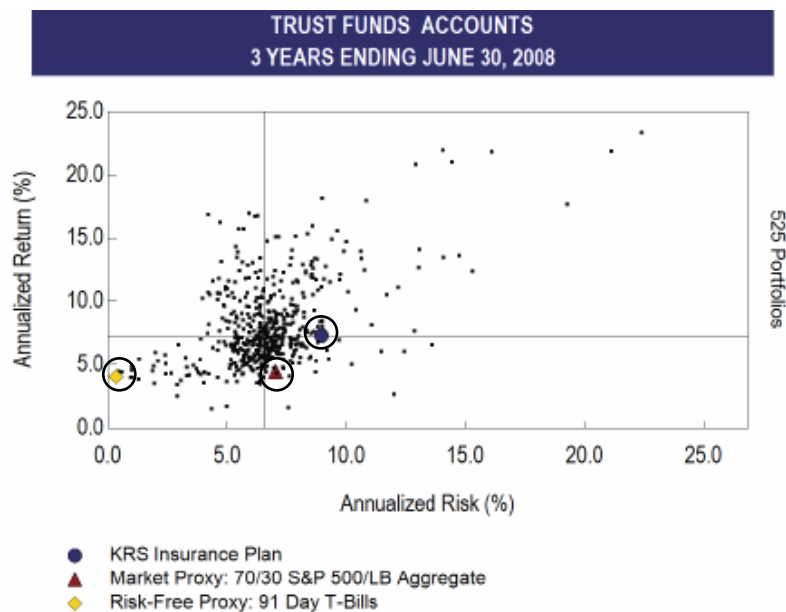
### Risk vs. Return for 3 Years Ending June 30, 2008

Rank within Public Funds >\$1B (peer)	Annualized Return	Percentile Rank	Standard Deviation
KRS Insurance Plan	7.3%	68	9.0%
70/30 S&P 500/LB Aggregate	4.5%	98	7.0%
Median for this Universe	8.4%		6.7%

### Risk vs. Return for 5 Years Ending June 30, 2008

Rank within Public Funds >\$1B (peer)	Annualized Return	Percentile Rank	Standard Deviation
KRS Insurance Plan	10.1%	59	8.5%
70/30 S&P 500/LB Aggregate	6.6%	95	6.5%
Median for this Universe	10.4%		6.8%

# Risk/Return Profile – KRS Insurance Plan vs. Total Plan Universe



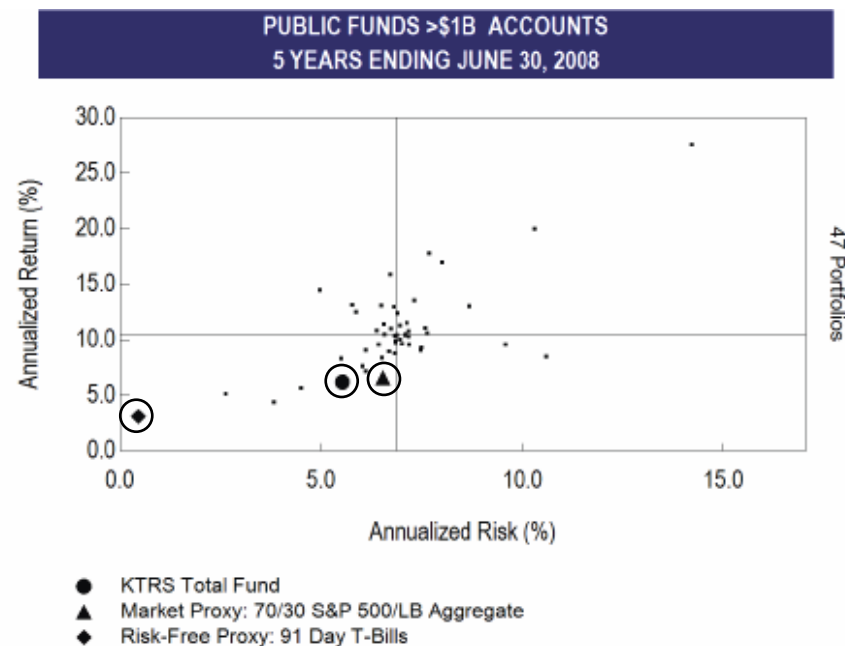
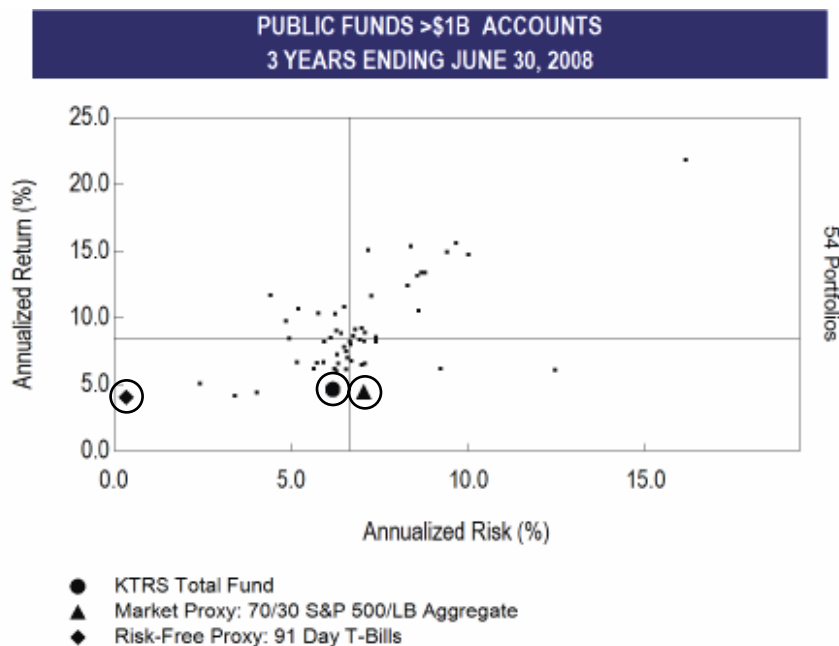
**Risk vs. Return for 3 Years Ending June 30, 2008**

Rank within Trust Funds (peer)	Annualized Return	Percentile Rank	Standard Deviation
KRS Insurance Plan	7.3%	48	9.0%
70/30 S&P 500/LB Aggregate	4.5%	93	7.0%
Median for this Universe	7.2%		6.6%

**Risk vs. Return for 5 Years Ending June 30, 2008**

Rank within Trust Funds (peer)	Annualized Return	Percentile Rank	Standard Deviation
KRS Insurance Plan	10.1%	42	8.5%
70/30 S&P 500/LB Aggregate	6.6%	89	6.5%
Median for this Universe	9.5%		6.8%

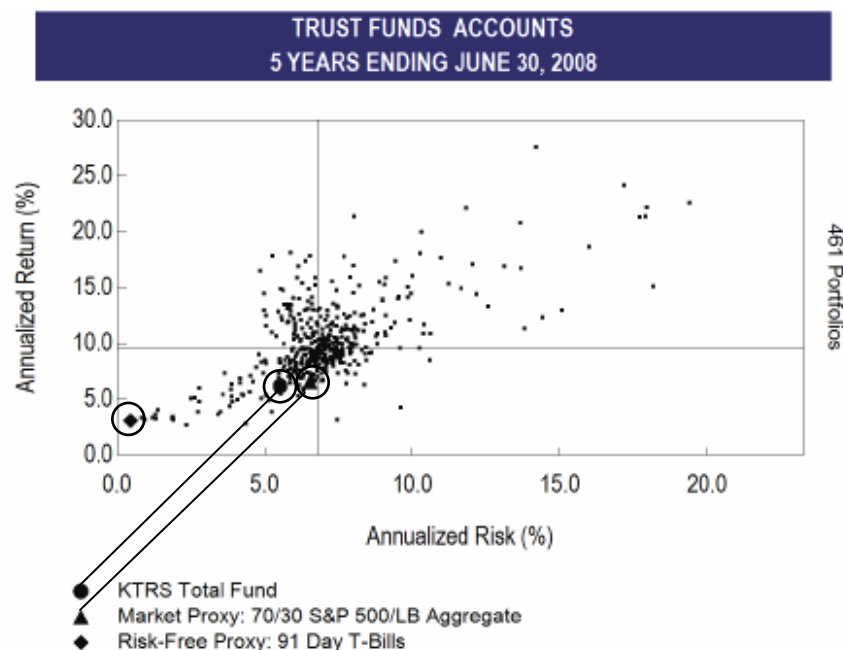
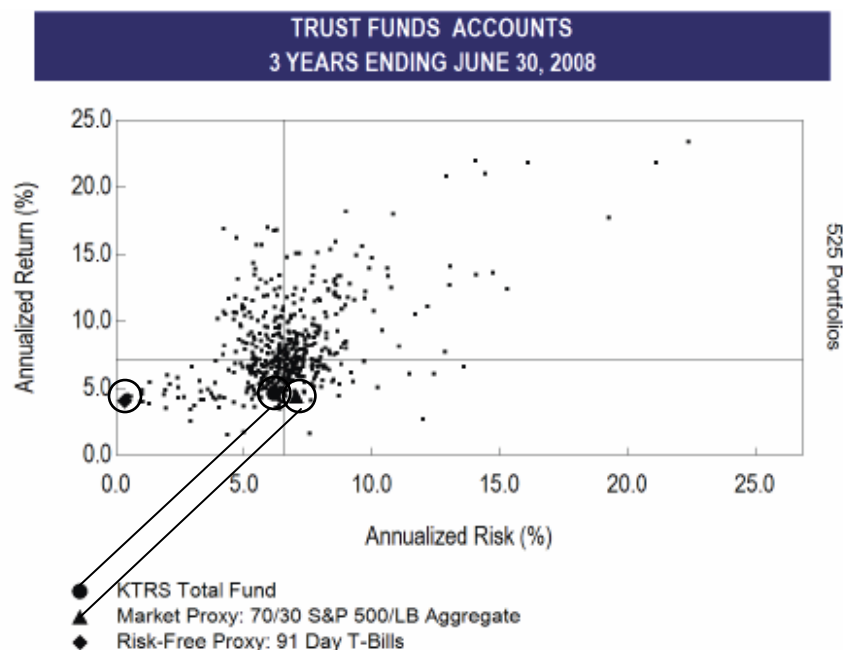
## Risk/Return Profile – KTRS Total Fund vs. Public Funds > \$1b



Risk vs. Return for 3 Years Ending June 30, 2008			
Rank within Public Funds >\$1B (peer)	Annualized Return	Percentile Rank	Standard Deviation
KTRS Total Fund	4.6%	98	6.2%
Median for this Universe	8.4%		6.7%

Risk vs. Return for 5 Years Ending June 30, 2008			
Rank within Public Funds >\$1B (peer)	Annualized Return	Percentile Rank	Standard Deviation
KTRS Total Fund	6.2%	95	5.5%
Median for this Universe	10.4%		6.8%

# Risk/Return Profile – KTRS Total Fund vs. Total Plan Universe



## Risk vs. Return for 3 Years Ending June 30, 2008

Rank within Trust Funds (peer)	Annualized Return	Percentile Rank	Standard Deviation
KTRS Total Fund	4.6%	92	6.2%
Median for this Universe	7.2%		6.6%

## Risk vs. Return for 5 Years Ending June 30, 2008

Rank within Trust Funds (peer)	Annualized Return	Percentile Rank	Standard Deviation
KTRS Total Fund	6.2%	91	5.5%
Median for this Universe	9.5%		6.8%

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## V. Manager Performance

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## Manager Performance

- Manager performance has met exceeded expectations for both KRS and KTRS.
- Over the past 3, 5, and 10-year periods ending June 30, 2008, the majority of KRS and KTRS managers have ranked in the top half of their respective peer universe, with many ranking in the top quartile.
- Performance over the past year has been more varied, which is as expected due to the shorter time horizon. However, more managers have ranked in the top half of their universe versus the bottom half over the past year.
- Manager selection and performance did not contribute to the systems' underperformance and likely improved performance.
- The underperformance of KRS and KTRS can be attributed to the asset allocation of each system.

# Manager Performance – KRS

## *KRS Pension Fund Manager Universe Comparison Summary (as of 6/30/08)*

Peer Return Rankings Distribution								
	1 Year		3 Years		5 Years		10 Years	
1st Quartile Managers	1	(11%)	2	(29%)	2	(50%)	1	(100%)
2nd Quartile Managers	4	(44%)	3	(43%)	2	(50%)	0	(0%)
3rd Quartile Managers	3	(33%)	1	(14%)	0	(0%)	0	(0%)
4th Quartile Managers	1	(11%)	1	(14%)	0	(0%)	0	(0%)

## *KRS Insurance Fund Manager Universe Comparison Summary (as of 6/30/08)*

Peer Return Rankings Distribution						
	1 Year		3 Years		5 Years	
1st Quartile Managers	1	(100%)	0	(0%)	1	(100%)
2nd Quartile Managers	0	(0%)	1	(100%)	0	(0%)
3rd Quartile Managers	0	(0%)	0	(0%)	0	(0%)
4th Quartile Managers	0	(0%)	0	(0%)	0	(0%)

- The KRS managers are ranked according to their 1, 3, 5 and 10-year returns against a peer universe of managers in the same asset class. The peer universe of managers is then divided into four quartiles.
- For the 1-year period ending June 30, 2008, 5 of 9 KRS Pension Fund managers ranked in the top half of their respective peer universes. For the 3-year period, 5 of 7 managers with sufficient data ranked in the top half. For the 5-year and 10-year period, all managers with sufficient data ranked in the top half.
- Individual manager rankings can be found on pages 47-50.

Note: Peer return rankings only include active externally managed investments.

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## Manager Performance – KTRS

### *KTRS Manager Universe Comparison Summary (as of 6/30/08)*

Peer Return Rankings Distribution								
	1 Year		3 Years		5 Years		10 Years	
1st Quartile Managers	2	(15%)	2	(40%)	2	(40%)	3	(60%)
2nd Quartile Managers	5	(38%)	2	(40%)	2	(40%)	2	(40%)
3rd Quartile Managers	3	(23%)	0	(0%)	1	(20%)	0	(0%)
4th Quartile Managers	3	(23%)	1	(20%)	0	(0%)	0	(0%)

- The KTRS managers are ranked according to their 1, 3, 5 and 10-year returns against a peer universe of managers in the same asset class. The peer universe of managers is then divided into four quartiles.
- For the 3 and 5-year periods ending June 30, 2008, 4 of 5 KTRS managers ranked in the top half of their respective peer universes. For the 10-year period, all 5 managers with sufficient data ranked in the top half.
- Individual manager rankings can be found on pages 51-55.

Note: Peer return rankings only include active externally managed investments.

# KRS Pension Fund – U.S. Equity Manager Performance

Managers	Periods Ending 6/30/08				Calendar Year Ending									
	1 Yr	3 Yrs	5 Yrs	10 Yrs	YTD	2007	2006	2005	2004	2003	2002	2001	2000	1999
<b>Internal S&amp;P 1500 Index</b>	<b>-12.7%</b>	<b>4.7%</b>	<b>8.0%</b>	<b>NA</b>	<b>-11.1%</b>	<b>5.3%</b>	<b>15.4%</b>	<b>5.8%</b>	<b>11.2%</b>	<b>29.6%</b>	<b>-20.5%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>S&amp;P 1500</i>	<i>-12.7%</i>	<i>4.6%</i>	<i>8.2%</i>	<i>NA</i>	<i>-11.1%</i>	<i>5.5%</i>	<i>15.3%</i>	<i>5.7%</i>	<i>11.8%</i>	<i>29.6%</i>	<i>-21.3%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	45 <sup>th</sup>	45 <sup>th</sup>	56 <sup>th</sup>	NA	58 <sup>th</sup>	45 <sup>th</sup>	39 <sup>th</sup>	57 <sup>th</sup>	59 <sup>th</sup>	51 <sup>st</sup>	54 <sup>th</sup>	NA	NA	NA
Standard Deviation Ranking	23 <sup>rd</sup>	17 <sup>th</sup>	17 <sup>th</sup>	NA										
<b>INVESCO Structured Core</b>	<b>-10.2%</b>	<b>7.8%</b>	<b>NA</b>	<b>NA</b>	<b>-11.2%</b>	<b>5.3%</b>	<b>22.8%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>S&amp;P 500</i>	<i>-13.1%</i>	<i>4.4%</i>	<i>NA</i>	<i>NA</i>	<i>-11.9%</i>	<i>5.5%</i>	<i>15.8%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	29 <sup>th</sup>	11 <sup>th</sup>	NA	NA	50 <sup>th</sup>	55 <sup>th</sup>	2 <sup>nd</sup>	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	60 <sup>th</sup>	71 <sup>st</sup>	NA	NA										
<b>Northern Trust Quantitative Advisors</b>	<b>-17.1%</b>	<b>3.9%</b>	<b>11.2%</b>	<b>NA</b>	<b>-9.1%</b>	<b>-2.5%</b>	<b>17.9%</b>	<b>6.7%</b>	<b>20.2%</b>	<b>50.9%</b>	<b>-15.0%</b>	<b>6.2%</b>	<b>-5.1%</b>	<b>NA</b>
<i>Russell 2000</i>	<i>-16.2%</i>	<i>3.8%</i>	<i>10.3%</i>	<i>NA</i>	<i>-9.4%</i>	<i>-1.6%</i>	<i>18.4%</i>	<i>4.6%</i>	<i>18.3%</i>	<i>47.3%</i>	<i>-20.5%</i>	<i>2.5%</i>	<i>-3.0%</i>	<i>NA</i>
Peer Ranking	48 <sup>th</sup>	40 <sup>th</sup>	33 <sup>rd</sup>	NA	48 <sup>th</sup>	59 <sup>th</sup>	24 <sup>th</sup>	55 <sup>th</sup>	42 <sup>nd</sup>	17 <sup>th</sup>	42 <sup>nd</sup>	51 <sup>st</sup>	92 <sup>nd</sup>	NA
Standard Deviation Ranking	30 <sup>th</sup>	40 <sup>th</sup>	57 <sup>th</sup>											

# KRS Pension Fund – International Equity Manager Performance

Managers	Periods Ending 6/30/08				Calendar Year Ending									
	1 Yr	3 Yrs	5 Yrs	10 Yrs	YTD	2007	2006	2005	2004	2003	2002	2001	2000	1999
<b>Barclays Global Investors</b>	<b>-11.5%</b>	<b>13.0%</b>	<b>NA</b>	<b>NA</b>	<b>-9.2%</b>	<b>8.4%</b>	<b>27.9%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>MSCI EAFE (net)</i>	<i>-10.6%</i>	<i>12.8%</i>	<i>NA</i>	<i>NA</i>	<i>-11.0%</i>	<i>11.2%</i>	<i>26.3%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	65 <sup>th</sup>	56 <sup>th</sup>	NA	NA	24 <sup>th</sup>	82 <sup>nd</sup>	24 <sup>th</sup>	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	20 <sup>th</sup>	23 <sup>rd</sup>	NA	NA										
<b>Boston Company</b>	<b>-14.3%</b>	<b>9.4%</b>	<b>NA</b>	<b>NA</b>	<b>-12.4%</b>	<b>6.2%</b>	<b>23.8%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>MSCI EAFE (net)</i>	<i>-10.6%</i>	<i>12.8%</i>	<i>NA</i>	<i>NA</i>	<i>-11.0%</i>	<i>11.2%</i>	<i>26.3%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	84 <sup>th</sup>	92 <sup>nd</sup>	NA	NA	74 <sup>th</sup>	91 <sup>st</sup>	66 <sup>th</sup>	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	11 <sup>th</sup>	8 <sup>th</sup>	NA	NA										
<b>Pyramis Global Investors</b>	<b>-4.7%</b>	<b>14.7%</b>	<b>18.0%</b>	<b>NA</b>	<b>-8.9%</b>	<b>14.7%</b>	<b>24.3%</b>	<b>16.1%</b>	<b>20.0%</b>	<b>38.1%</b>	<b>-10.6%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>MSCI EAFE (net)</i>	<i>-10.6%</i>	<i>12.8%</i>	<i>16.7%</i>	<i>NA</i>	<i>-11.0%</i>	<i>11.2%</i>	<i>26.3%</i>	<i>13.5%</i>	<i>20.2%</i>	<i>38.6%</i>	<i>-15.9%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	18 <sup>th</sup>	29 <sup>th</sup>	25 <sup>th</sup>	NA	23 <sup>rd</sup>	34 <sup>th</sup>	59 <sup>th</sup>	36 <sup>th</sup>	31 <sup>st</sup>	37 <sup>th</sup>	17 <sup>th</sup>	NA	NA	NA
Standard Deviation Ranking	67 <sup>th</sup>	48 <sup>th</sup>	48 <sup>th</sup>	NA										
<b>Aberdeen</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>-6.9%</b>	<b>34.9%</b>	<b>36.7%</b>	<b>37.4%</b>	<b>28.0%</b>	<b>63.0%</b>	<b>6.9%</b>	<b>-4.9%</b>	<b>-18.6%</b>	<b>72.0%</b>
<i>MSCI Emerging Markets Free</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>-11.7%</i>	<i>39.4%</i>	<i>32.2%</i>	<i>34.0%</i>	<i>25.6%</i>	<i>55.8%</i>	<i>-6.2%</i>	<i>-2.6%</i>	<i>-30.6%</i>	<i>66.4%</i>
Peer Ranking	NA	NA	NA	NA	5 <sup>th</sup>	66 <sup>th</sup>	17 <sup>th</sup>	24 <sup>th</sup>	25 <sup>th</sup>	31 <sup>st</sup>	2 <sup>nd</sup>	69 <sup>th</sup>	6 <sup>th</sup>	45 <sup>th</sup>
Standard Deviation Ranking	NA	NA	NA	NA										
<b>Wellington</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>-10.1%</b>	<b>47.2%</b>	<b>35.2%</b>	<b>36.1%</b>	<b>27.8%</b>	<b>62.7%</b>	<b>-4.1%</b>	<b>4.2%</b>	<b>-31.1%</b>	<b>84.7%</b>
<i>MSCI Emerging Markets Free</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>-11.7%</i>	<i>39.4%</i>	<i>32.2%</i>	<i>34.0%</i>	<i>25.6%</i>	<i>55.8%</i>	<i>-6.2%</i>	<i>-2.6%</i>	<i>-30.6%</i>	<i>66.4%</i>
Peer Ranking	NA	NA	NA	NA	31 <sup>st</sup>	7 <sup>th</sup>	23 <sup>rd</sup>	27 <sup>th</sup>	27 <sup>th</sup>	33 <sup>rd</sup>	43 <sup>rd</sup>	11 <sup>th</sup>	60 <sup>th</sup>	23 <sup>rd</sup>
Standard Deviation Ranking	NA	NA	NA	NA										

# KRS Pension Fund – Fixed Income Manager Performance

Managers	Periods Ending 6/30/08				Calendar Year Ending									
	1 Yr	3 Yrs	5 Yrs	10 Yrs	YTD	2007	2006	2005	2004	2003	2002	2001	2000	1999
<b>Lehman Brothers</b>	<b>4.5%</b>	<b>3.3%</b>	<b>3.5%</b>	<b>5.6%</b>	<b>-0.6%</b>	<b>6.2%</b>	<b>4.6%</b>	<b>2.5%</b>	<b>4.6%</b>	<b>4.5%</b>	<b>10.8%</b>	<b>8.5%</b>	<b>11.8%</b>	<b>-0.8%</b>
<i>Lehman Aggregate Bond Index</i>	<i>7.1%</i>	<i>4.1%</i>	<i>3.9%</i>	<i>5.7%</i>	<i>1.1%</i>	<i>7.0%</i>	<i>4.3%</i>	<i>2.4%</i>	<i>4.3%</i>	<i>4.1%</i>	<i>10.3%</i>	<i>8.4%</i>	<i>11.6%</i>	<i>-0.8%</i>
Peer Ranking	55 <sup>th</sup>	50 <sup>th</sup>	35 <sup>th</sup>	13 <sup>th</sup>	67 <sup>th</sup>	35 <sup>th</sup>	27 <sup>th</sup>	22 <sup>nd</sup>	31 <sup>st</sup>	51 <sup>st</sup>	8 <sup>th</sup>	29 <sup>th</sup>	17 <sup>th</sup>	44 <sup>th</sup>
Standard Deviation Ranking	37 <sup>th</sup>	53 <sup>rd</sup>	59 <sup>th</sup>	39 <sup>th</sup>										
<b>Baird Advisors</b>	<b>3.7%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>-0.6%</b>	<b>5.6%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>Lehman Aggregate Bond Index</i>	<i>7.1%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>1.1%</i>	<i>7.0%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	65 <sup>th</sup>	NA	NA	NA	67 <sup>th</sup>	54 <sup>th</sup>	NA	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	19 <sup>th</sup>	NA	NA	NA										
<b>Pyramis Global Investors</b>	<b>6.1%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>0.9%</b>	<b>6.4%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>Lehman Aggregate Bond Index</i>	<i>7.1%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>1.1%</i>	<i>7.0%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	35 <sup>th</sup>	NA	NA	NA	32 <sup>nd</sup>	26 <sup>th</sup>	NA	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	6 <sup>th</sup>	NA	NA	NA										
<b>Internal TIPS</b>	<b>15.4%</b>	<b>5.7%</b>	<b>6.0%</b>	<b>NA</b>	<b>5.2%</b>	<b>11.5%</b>	<b>0.6%</b>	<b>2.9%</b>	<b>8.2%</b>	<b>8.7%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>Citigroup Inflation Linked Bond</i>	<i>15.1%</i>	<i>5.6%</i>	<i>5.9%</i>	<i>NA</i>	<i>4.9%</i>	<i>11.6%</i>	<i>0.4%</i>	<i>2.9%</i>	<i>8.4%</i>	<i>8.3%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	24 <sup>th</sup>	21 <sup>st</sup>	6 <sup>th</sup>	NA	28 <sup>th</sup>	14 <sup>th</sup>	24 <sup>th</sup>	11 <sup>th</sup>	29 <sup>th</sup>	14 <sup>th</sup>	NA	NA	NA	NA
Standard Deviation Ranking	69 <sup>th</sup>	69 <sup>th</sup>	66 <sup>th</sup>	NA										
<b>Weaver Barksdale TIPS</b>	<b>15.2%</b>	<b>5.7%</b>	<b>6.1%</b>	<b>NA</b>	<b>5.0%</b>	<b>11.4%</b>	<b>0.6%</b>	<b>2.9%</b>	<b>8.6%</b>	<b>8.8%</b>	<b>16.4%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>Citigroup Inflation Linked Bond</i>	<i>15.1%</i>	<i>5.6%</i>	<i>5.9%</i>	<i>NA</i>	<i>4.9%</i>	<i>11.6%</i>	<i>0.4%</i>	<i>2.9%</i>	<i>8.4%</i>	<i>8.3%</i>	<i>16.7%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	31 <sup>st</sup>	21 <sup>st</sup>	6 <sup>th</sup>	NA	36 <sup>th</sup>	27 <sup>th</sup>	24 <sup>th</sup>	11 <sup>th</sup>	15 <sup>th</sup>	14 <sup>th</sup>	29 <sup>th</sup>	NA	NA	NA
Standard Deviation Ranking	76 <sup>th</sup>	69 <sup>th</sup>	60 <sup>th</sup>	NA										

# KRS Insurance Fund – Manager Performance

Managers	Periods Ending 6/30/08				Calendar Year Ending									
	1 Yr	3 Yrs	5 Yrs	10 Yrs	YTD	2007	2006	2005	2004	2003	2002	2001	2000	1999
<b>Internal S&amp;P 1500 Index</b>	<b>-13.0%</b>	<b>4.6%</b>	<b>8.2%</b>	<b>NA</b>	<b>-11.2%</b>	<b>5.0%</b>	<b>15.4%</b>	<b>6.3%</b>	<b>11.7%</b>	<b>29.6%</b>	<b>-20.9%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>S&amp;P 1500</i>	<i>-12.7%</i>	<i>4.6%</i>	<i>8.2%</i>	<i>NA</i>	<i>-11.1%</i>	<i>5.5%</i>	<i>15.3%</i>	<i>5.7%</i>	<i>11.8%</i>	<i>29.6%</i>	<i>-21.3%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	48 <sup>th</sup>	48 <sup>th</sup>	55 <sup>th</sup>	NA	60 <sup>th</sup>	50 <sup>th</sup>	39 <sup>th</sup>	51 <sup>th</sup>	55 <sup>th</sup>	51 <sup>st</sup>	57 <sup>th</sup>	NA	NA	NA
Standard Deviation Ranking	23 <sup>rd</sup>	19 <sup>th</sup>	26 <sup>th</sup>	NA										
Managers	Periods Ending 6/30/08				Calendar Year Ending									
	1 Yr	3 Yrs	5 Yrs	10 Yrs	YTD	2007	2006	2005	2004	2003	2002	2001	2000	1999
<b>Fidelity</b>	<b>-4.5%</b>	<b>14.8%</b>	<b>17.9%</b>	<b>NA</b>	<b>-9.0%</b>	<b>14.9%</b>	<b>24.2%</b>	<b>15.9%</b>	<b>19.8%</b>	<b>37.7%</b>	<b>-10.4%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>MSCI EAFE (net)</i>	<i>-10.6%</i>	<i>12.8%</i>	<i>16.7%</i>	<i>NA</i>	<i>-11.0%</i>	<i>11.2%</i>	<i>26.3%</i>	<i>13.5%</i>	<i>20.2%</i>	<i>38.6%</i>	<i>-15.9%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	18 <sup>th</sup>	29 <sup>th</sup>	25 <sup>th</sup>	NA	24 <sup>th</sup>	33 <sup>rd</sup>	60 <sup>th</sup>	37 <sup>th</sup>	33 <sup>rd</sup>	40 <sup>th</sup>	15 <sup>th</sup>	NA	NA	NA
Standard Deviation Ranking	68 <sup>th</sup>	48 <sup>th</sup>	48 <sup>th</sup>	NA										
<i>International large-cap equity, quantitative</i>														
<b>Aberdeen</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>MSCI Emerging Markets Free</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	NA	NA	NA	NA										
<b>Wellington</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>MSCI Emerging Markets Free</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	NA	NA	NA	NA										
Managers	Periods Ending 6/30/08				Calendar Year Ending									
	1 Yr	3 Yrs	5 Yrs	10 Yrs	YTD	2007	2006	2005	2004	2003	2002	2001	2000	1999
<b>Internal TIPS</b>	<b>15.3%</b>	<b>5.7%</b>	<b>NA</b>	<b>NA</b>	<b>5.2%</b>	<b>11.5%</b>	<b>0.5%</b>	<b>3.0%</b>	<b>8.9%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>Citigroup Inflation Linked Bond</i>	<i>15.1%</i>	<i>5.6%</i>	<i>NA</i>	<i>NA</i>	<i>4.9%</i>	<i>11.6%</i>	<i>0.4%</i>	<i>2.9%</i>	<i>8.4%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	26 <sup>th</sup>	21 <sup>st</sup>	NA	NA	26 <sup>th</sup>	22 <sup>nd</sup>	27 <sup>th</sup>	11 <sup>th</sup>	10 <sup>th</sup>	NA	NA	NA	NA	NA
Standard Deviation Ranking	58 <sup>th</sup>	56 <sup>th</sup>	NA	NA										

# KTRS – U.S. Equity Large-Cap Manager Performance

Managers	Periods Ending 6/30/08				Calendar Year Ending									
	1 Yr	3 Yrs	5 Yrs	10 Yrs	YTD	2007	2006	2005	2004	2003	2002	2001	2000	1999
<b>UBS Global</b>	<b>-15.9%</b>	<b>4.4%</b>	<b>9.1%</b>	<b>4.7%</b>	<b>-11.1%</b>	<b>2.1%</b>	<b>16.1%</b>	<b>10.7%</b>	<b>13.5%</b>	<b>32.0%</b>	<b>-15.5%</b>	<b>4.1%</b>	<b>7.0%</b>	<b>-7.7%</b>
<i>Russell 1000 Value</i>	<i>-18.8%</i>	<i>3.5%</i>	<i>8.9%</i>	<i>4.9%</i>	<i>-13.6%</i>	<i>-0.2%</i>	<i>22.2%</i>	<i>7.1%</i>	<i>16.5%</i>	<i>30.0%</i>	<i>-15.5%</i>	<i>-5.6%</i>	<i>7.0%</i>	<i>7.3%</i>
Peer Ranking	38 <sup>th</sup>	33 <sup>rd</sup>	32 <sup>nd</sup>	42 <sup>nd</sup>	30 <sup>th</sup>	47 <sup>th</sup>	78 <sup>th</sup>	10 <sup>th</sup>	52 <sup>nd</sup>	24 <sup>th</sup>	37 <sup>th</sup>	19 <sup>th</sup>	70 <sup>th</sup>	97 <sup>th</sup>
Standard Deviation Ranking	74 <sup>th</sup>	57 <sup>th</sup>	49 <sup>th</sup>	57 <sup>th</sup>										
<b>S&amp;P 500 Equity Index</b>	<b>-13.0%</b>	<b>4.5%</b>	<b>7.7%</b>	<b>3.0%</b>	<b>-11.9%</b>	<b>5.6%</b>	<b>16.0%</b>	<b>5.0%</b>	<b>10.9%</b>	<b>28.9%</b>	<b>-21.9%</b>	<b>-12.2%</b>	<b>-8.9%</b>	<b>21.4%</b>
<i>S&amp;P 500</i>	<i>-13.1%</i>	<i>4.4%</i>	<i>7.6%</i>	<i>2.9%</i>	<i>-11.9%</i>	<i>5.5%</i>	<i>15.8%</i>	<i>4.9%</i>	<i>10.9%</i>	<i>28.7%</i>	<i>-22.1%</i>	<i>-11.9%</i>	<i>-9.1%</i>	<i>21.0%</i>
Peer Ranking	55 <sup>th</sup>	48 <sup>th</sup>	47 <sup>th</sup>	49 <sup>th</sup>	62 <sup>nd</sup>	47 <sup>th</sup>	22 <sup>nd</sup>	57 <sup>th</sup>	43 <sup>rd</sup>	34 <sup>th</sup>	52 <sup>nd</sup>	66 <sup>th</sup>	66 <sup>th</sup>	35 <sup>th</sup>
Standard Deviation Ranking	38 <sup>th</sup>	39 <sup>th</sup>	28 <sup>th</sup>	55 <sup>th</sup>										
<b>Todd Alpha</b>	<b>-16.2%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>-7.5%</b>	<b>-4.2%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>S&amp;P 500</i>	<i>-13.1%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>-11.9%</i>	<i>5.5%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	87 <sup>th</sup>	NA	NA	NA	12 <sup>th</sup>	98 <sup>th</sup>	NA	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	90 <sup>th</sup>	NA	NA	NA										
<b>Todd U.S. Equity</b>	<b>-11.0%</b>	<b>5.0%</b>	<b>8.7%</b>	<b>5.5%</b>	<b>-10.4%</b>	<b>5.4%</b>	<b>17.0%</b>	<b>7.6%</b>	<b>13.3%</b>	<b>26.5%</b>	<b>-19.2%</b>	<b>-2.2%</b>	<b>-1.3%</b>	<b>14.1%</b>
<i>S&amp;P 500</i>	<i>-13.1%</i>	<i>4.4%</i>	<i>7.6%</i>	<i>2.9%</i>	<i>-11.9%</i>	<i>5.5%</i>	<i>15.8%</i>	<i>4.9%</i>	<i>10.9%</i>	<i>28.7%</i>	<i>-22.1%</i>	<i>-11.9%</i>	<i>-9.1%</i>	<i>21.0%</i>
Peer Ranking	35 <sup>th</sup>	38 <sup>th</sup>	27 <sup>th</sup>	18 <sup>th</sup>	37 <sup>th</sup>	51 <sup>st</sup>	12 <sup>th</sup>	28 <sup>th</sup>	20 <sup>th</sup>	68 <sup>th</sup>	32 <sup>nd</sup>	15 <sup>th</sup>	36 <sup>th</sup>	77 <sup>th</sup>
Standard Deviation Ranking	14 <sup>th</sup>	12 <sup>th</sup>	8 <sup>th</sup>	16 <sup>th</sup>										
<b>UBS Alpha</b>	<b>-17.4%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>-12.8%</b>	<b>1.8%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>Russell 1000</i>	<i>-12.4%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>-11.2%</i>	<i>5.8%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	91 <sup>st</sup>	NA	NA	NA	83 <sup>rd</sup>	85 <sup>th</sup>	NA	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	79 <sup>th</sup>	NA	NA	NA										
<b>Wellington Intersection</b>	<b>-13.0%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>-11.8%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>S&amp;P 500</i>	<i>-13.1%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>-11.9%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	55 <sup>th</sup>	NA	NA	NA	59 <sup>th</sup>	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	99 <sup>th</sup>	NA	NA	NA										
<b>GE Asset Management</b>	<b>-6.7%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>-6.5%</b>	<b>5.7%</b>	<b>10.3%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>Russell 1000 Growth</i>	<i>-6.0%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>-9.1%</i>	<i>11.8%</i>	<i>9.1%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	57 <sup>th</sup>	NA	NA	NA	15 <sup>th</sup>	87 <sup>th</sup>	26 <sup>th</sup>	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	5 <sup>th</sup>	NA	NA	NA										

# KTRS – U.S. Equity Mid-Cap and Small-Cap Manager Performance

Managers	Periods Ending 6/30/08				Calendar Year Ending									
	1 Yr	3 Yrs	5 Yrs	10 Yrs	YTD	2007	2006	2005	2004	2003	2002	2001	2000	1999
<b>S&amp;P 400 Equity Index</b>	<b>-6.2%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>-3.2%</b>	<b>9.1%</b>	<b>8.1%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>S&amp;P 400 (Mid-Cap)</i>	<i>-7.3%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>-3.9%</i>	<i>8.0%</i>	<i>10.3%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	17 <sup>th</sup>	NA	NA	NA	17 <sup>th</sup>	21 <sup>st</sup>	90 <sup>th</sup>	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	56 <sup>th</sup>	NA	NA	NA										
<b>Wellington Mid</b>	<b>-10.8%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>-4.0%</b>	<b>2.9%</b>	<b>11.2%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>S&amp;P 400 (Mid-Cap)</i>	<i>-7.3%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>-3.9%</i>	<i>8.0%</i>	<i>10.3%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	41 <sup>st</sup>	NA	NA	NA	21 <sup>st</sup>	65 <sup>th</sup>	63 <sup>rd</sup>	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	76 <sup>th</sup>	NA	NA	NA										
<b>S&amp;P 600 Equity Index</b>	<b>-0.6%</b>	<b>4.3%</b>	<b>NA</b>	<b>NA</b>	<b>-6.5%</b>	<b>-0.5%</b>	<b>15.1%</b>	<b>8.3%</b>	<b>23.7%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>S&amp;P 600 (Small-Cap)</i>	<i>-0.5%</i>	<i>4.1%</i>	<i>NA</i>	<i>NA</i>	<i>-7.1%</i>	<i>-0.3%</i>	<i>15.1%</i>	<i>7.7%</i>	<i>22.6%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	28 <sup>th</sup>	37 <sup>th</sup>	NA	NA	26 <sup>th</sup>	37 <sup>th</sup>	52 <sup>nd</sup>	37 <sup>th</sup>	17 <sup>th</sup>	NA	NA	NA	NA	NA
Standard Deviation Ranking	19 <sup>th</sup>	33 <sup>rd</sup>	NA	NA										
<b>Wellington Small</b>	<b>-19.7%</b>	<b>0.6%</b>	<b>9.1%</b>	<b>8.0%</b>	<b>-6.1%</b>	<b>-9.6%</b>	<b>13.1%</b>	<b>10.2%</b>	<b>19.0%</b>	<b>38.1%</b>	<b>-16.1%</b>	<b>6.4%</b>	<b>13.5%</b>	<b>26.2%</b>
<i>Russell 2000</i>	<i>-16.2%</i>	<i>3.8%</i>	<i>10.3%</i>	<i>5.5%</i>	<i>-9.4%</i>	<i>-1.6%</i>	<i>18.4%</i>	<i>4.6%</i>	<i>18.3%</i>	<i>47.3%</i>	<i>-20.5%</i>	<i>2.5%</i>	<i>-3.0%</i>	<i>21.3%</i>
Peer Ranking	70 <sup>th</sup>	87 <sup>th</sup>	75 <sup>th</sup>	33 <sup>rd</sup>	23 <sup>rd</sup>	93 <sup>rd</sup>	72 <sup>nd</sup>	22 <sup>nd</sup>	50 <sup>th</sup>	71 <sup>st</sup>	51 <sup>st</sup>	50 <sup>th</sup>	41 <sup>st</sup>	27 <sup>th</sup>
Standard Deviation Ranking	67 <sup>th</sup>	84 <sup>th</sup>	66 <sup>th</sup>	67 <sup>th</sup>										

## KTRS – International Manager Performance

Managers	Periods Ending 6/30/08				Calendar Year Ending									
	1 Yr	3 Yrs	5 Yrs	10 Yrs	YTD	2007	2006	2005	2004	2003	2002	2001	2000	1999
<b>Todd International</b>	<b>-8.6%</b>	NA	NA	NA	<b>-13.5%</b>	<b>16.3%</b>	<b>29.3%</b>	NA	NA	NA	NA	NA	NA	NA
<i>MSCI EAFE (net)</i>	<i>-10.6%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>-11.0%</i>	<i>11.2%</i>	<i>26.3%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	43 <sup>rd</sup>	NA	NA	NA	87 <sup>th</sup>	25 <sup>th</sup>	14 <sup>th</sup>	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	83 <sup>rd</sup>	NA	NA	NA										
<b>UBS International</b>	<b>-14.6%</b>	NA	NA	NA	<b>-13.0%</b>	<b>6.8%</b>	NA	NA	NA	NA	NA	NA	NA	NA
<i>MSCI EAFE (net)</i>	<i>-10.6%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>-11.0%</i>	<i>11.2%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	84 <sup>th</sup>	NA	NA	NA	81 <sup>st</sup>	90 <sup>th</sup>	NA	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	10 <sup>th</sup>	NA	NA	NA										

# KTRS – Fixed Income Manager Performance

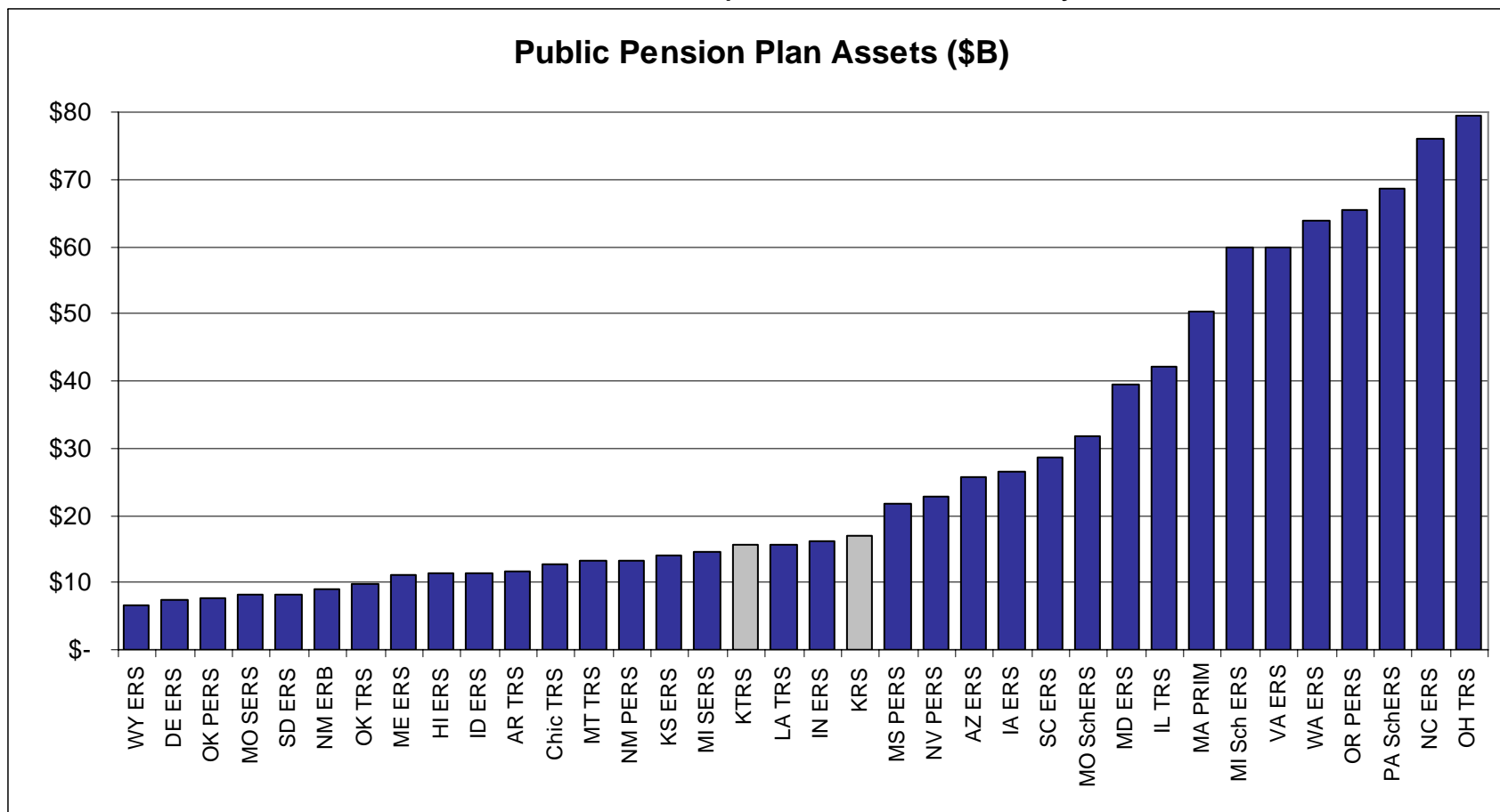
Managers	Periods Ending 6/30/08				Calendar Year Ending									
	1 Yr	3 Yrs	5 Yrs	10 Yrs	YTD	2007	2006	2005	2004	2003	2002	2001	2000	1999
<b>Galliard</b>	<b>7.2%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>1.1%</b>	<b>6.7%</b>	<b>4.1%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>Lehman Government-Credit Index</i>	<i>7.2%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>1.0%</i>	<i>7.3%</i>	<i>3.8%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	25 <sup>th</sup>	NA	NA	NA	35 <sup>th</sup>	23 <sup>rd</sup>	50 <sup>th</sup>	NA	NA	NA	NA	NA	NA	NA
Standard Deviation Ranking	80 <sup>th</sup>	NA	NA	NA										
<b>In-House Broad Market</b>	<b>7.8%</b>	<b>4.2%</b>	<b>3.9%</b>	<b>5.9%</b>	<b>1.6%</b>	<b>7.2%</b>	<b>4.0%</b>	<b>3.4%</b>	<b>4.3%</b>	<b>3.5%</b>	<b>12.0%</b>	<b>8.2%</b>	<b>12.6%</b>	<b>-2.4%</b>
<i>Lehman Government-Credit Index</i>	<i>7.2%</i>	<i>3.8%</i>	<i>3.6%</i>	<i>5.7%</i>	<i>1.0%</i>	<i>7.3%</i>	<i>3.8%</i>	<i>2.3%</i>	<i>4.2%</i>	<i>4.7%</i>	<i>11.0%</i>	<i>8.5%</i>	<i>11.8%</i>	<i>-2.2%</i>
Peer Ranking	14 <sup>th</sup>	18 <sup>th</sup>	16 <sup>th</sup>	8 <sup>th</sup>	15 <sup>th</sup>	15 <sup>th</sup>	50 <sup>th</sup>	4 <sup>th</sup>	34 <sup>th</sup>	61 <sup>st</sup>	4 <sup>th</sup>	32 <sup>nd</sup>	9 <sup>th</sup>	79 <sup>th</sup>
Standard Deviation Ranking	85 <sup>th</sup>	91 <sup>st</sup>	92 <sup>nd</sup>	88 <sup>th</sup>										
<b>Todd Bond</b>	<b>7.3%</b>	<b>4.3%</b>	<b>3.9%</b>	<b>5.6%</b>	<b>1.3%</b>	<b>7.0%</b>	<b>4.4%</b>	<b>2.8%</b>	<b>4.5%</b>	<b>4.1%</b>	<b>11.0%</b>	<b>8.2%</b>	<b>11.4%</b>	<b>-2.9%</b>
<i>Lehman Government-Credit Index</i>	<i>7.2%</i>	<i>3.8%</i>	<i>3.6%</i>	<i>5.7%</i>	<i>1.0%</i>	<i>7.3%</i>	<i>3.8%</i>	<i>2.3%</i>	<i>4.2%</i>	<i>4.7%</i>	<i>11.0%</i>	<i>8.5%</i>	<i>11.8%</i>	<i>-2.2%</i>
Peer Ranking	21 <sup>st</sup>	15 <sup>th</sup>	17 <sup>th</sup>	11 <sup>th</sup>	27 <sup>th</sup>	18 <sup>th</sup>	31 <sup>st</sup>	10 <sup>th</sup>	29 <sup>th</sup>	48 <sup>th</sup>	8 <sup>th</sup>	30 <sup>th</sup>	29 <sup>th</sup>	86 <sup>th</sup>
Standard Deviation Ranking	54 <sup>th</sup>	77 <sup>th</sup>	83 <sup>rd</sup>	84 <sup>th</sup>										
<b>Todd Bond Plus</b>	<b>7.1%</b>	<b>4.1%</b>	<b>3.9%</b>	<b>5.8%</b>	<b>1.1%</b>	<b>7.0%</b>	<b>4.4%</b>	<b>3.0%</b>	<b>5.0%</b>	<b>4.0%</b>	<b>11.8%</b>	<b>8.1%</b>	<b>11.6%</b>	<b>-2.0%</b>
<i>Intermediate Government-Credit</i>	<i>7.2%</i>	<i>3.8%</i>	<i>3.6%</i>	<i>5.7%</i>	<i>1.0%</i>	<i>7.3%</i>	<i>3.8%</i>	<i>2.3%</i>	<i>4.2%</i>	<i>4.7%</i>	<i>11.0%</i>	<i>8.5%</i>	<i>11.8%</i>	<i>-2.2%</i>
Peer Ranking	27 <sup>th</sup>	24 <sup>th</sup>	15 <sup>th</sup>	8 <sup>th</sup>	33 <sup>rd</sup>	17 <sup>th</sup>	32 <sup>nd</sup>	6 <sup>th</sup>	15 <sup>th</sup>	50 <sup>th</sup>	5 <sup>th</sup>	34 <sup>th</sup>	24 <sup>th</sup>	72 <sup>nd</sup>
Standard Deviation Ranking	59 <sup>th</sup>	82 <sup>nd</sup>	92 <sup>nd</sup>	89 <sup>th</sup>										
<b>In-House Long Bond</b>	<b>7.6%</b>	<b>3.4%</b>	<b>3.9%</b>	<b>6.0%</b>	<b>0.9%</b>	<b>7.0%</b>	<b>3.4%</b>	<b>4.0%</b>	<b>5.9%</b>	<b>4.1%</b>	<b>13.4%</b>	<b>8.0%</b>	<b>13.2%</b>	<b>-4.3%</b>
<i>Lehman Long Government-Credit Index</i>	<i>6.8%</i>	<i>2.2%</i>	<i>4.0%</i>	<i>6.3%</i>	<i>-0.7%</i>	<i>6.6%</i>	<i>2.7%</i>	<i>5.3%</i>	<i>8.6%</i>	<i>5.9%</i>	<i>14.8%</i>	<i>7.3%</i>	<i>16.2%</i>	<i>-7.6%</i>
Peer Ranking	21 <sup>st</sup>	24 <sup>th</sup>	56 <sup>th</sup>	34 <sup>th</sup>	20 <sup>th</sup>	27 <sup>th</sup>	65 <sup>th</sup>	31 <sup>st</sup>	71 <sup>st</sup>	99 <sup>th</sup>	13 <sup>th</sup>	99 <sup>th</sup>	15 <sup>th</sup>	43 <sup>rd</sup>
Standard Deviation Ranking	60 <sup>th</sup>	61 <sup>st</sup>	33 <sup>rd</sup>	33 <sup>rd</sup>										

# KTRS – Fixed Income Manager Performance

Managers	Periods Ending 6/30/08				Calendar Year Ending									
	1 Yr	3 Yrs	5 Yrs	10 Yrs	YTD	2007	2006	2005	2004	2003	2002	2001	2000	1999
<b>In-House Intermediate Bond</b>	<b>7.8%</b>	<b>4.7%</b>	<b>3.8%</b>	<b>5.7%</b>	<b>1.9%</b>	<b>7.6%</b>	<b>4.2%</b>	<b>2.3%</b>	<b>2.9%</b>	<b>3.8%</b>	<b>10.8%</b>	<b>8.3%</b>	<b>10.3%</b>	<b>0.6%</b>
<i>Lehman Intermediate Government-Credit Inde</i>	<i>7.4%</i>	<i>4.3%</i>	<i>3.5%</i>	<i>5.5%</i>	<i>1.4%</i>	<i>7.4%</i>	<i>4.1%</i>	<i>1.6%</i>	<i>3.0%</i>	<i>4.3%</i>	<i>9.8%</i>	<i>9.0%</i>	<i>10.1%</i>	<i>0.4%</i>
Peer Ranking	12 <sup>th</sup>	5 <sup>th</sup>	19 <sup>th</sup>	10 <sup>th</sup>	8 <sup>th</sup>	10 <sup>th</sup>	39 <sup>th</sup>	33 <sup>rd</sup>	85 <sup>th</sup>	56 <sup>th</sup>	11 <sup>th</sup>	29 <sup>th</sup>	60 <sup>th</sup>	19 <sup>th</sup>
Standard Deviation Ranking	54 <sup>th</sup>	20 <sup>th</sup>	13 <sup>th</sup>	18 <sup>th</sup>										
<b>Internal</b>	<b>5.3%</b>	<b>3.9%</b>	<b>2.4%</b>	<b>6.0%</b>	<b>0.7%</b>	<b>7.3%</b>	<b>4.4%</b>	<b>0.4%</b>	<b>2.0%</b>	<b>-0.9%</b>	<b>19.7%</b>	<b>10.4%</b>	<b>13.6%</b>	<b>-2.0%</b>
<i>Lehman Mortgage Backed Securities Index</i>	<i>7.8%</i>	<i>4.8%</i>	<i>4.6%</i>	<i>5.8%</i>	<i>1.9%</i>	<i>6.9%</i>	<i>5.2%</i>	<i>2.6%</i>	<i>4.7%</i>	<i>3.1%</i>	<i>8.7%</i>	<i>8.2%</i>	<i>11.2%</i>	<i>1.9%</i>
Peer Ranking	44 <sup>th</sup>	21 <sup>st</sup>	88 <sup>th</sup>	6 <sup>th</sup>	37 <sup>th</sup>	9 <sup>th</sup>	35 <sup>th</sup>	99 <sup>th</sup>	98 <sup>th</sup>	99 <sup>th</sup>	1 <sup>st</sup>	4 <sup>th</sup>	1 <sup>st</sup>	74 <sup>th</sup>
Standard Deviation Ranking	9 <sup>th</sup>	5 <sup>th</sup>	99 <sup>th</sup>	99 <sup>th</sup>										
<b>Life Retired</b>	<b>9.1%</b>	<b>5.4%</b>	<b>4.5%</b>	<b>NA</b>	<b>2.0%</b>	<b>8.5%</b>	<b>4.8%</b>	<b>3.1%</b>	<b>3.3%</b>	<b>2.4%</b>	<b>5.0%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<i>Lehman Intermediate Government Index</i>	<i>9.2%</i>	<i>4.8%</i>	<i>3.6%</i>	<i>NA</i>	<i>2.2%</i>	<i>8.5%</i>	<i>3.8%</i>	<i>1.7%</i>	<i>2.3%</i>	<i>2.3%</i>	<i>9.6%</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	14 <sup>th</sup>	2 <sup>nd</sup>	2 <sup>nd</sup>	NA	18 <sup>th</sup>	8 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	54 <sup>th</sup>	30 <sup>th</sup>	98 <sup>th</sup>	NA	NA	NA
Standard Deviation Ranking	62 <sup>nd</sup>	17 <sup>th</sup>	2 <sup>nd</sup>	NA										
<b>Scholarship Fund</b>	<b>9.3%</b>	<b>4.6%</b>	<b>3.5%</b>	<b>NA</b>	<b>2.2%</b>	<b>8.8%</b>	<b>3.4%</b>	<b>1.7%</b>	<b>3.5%</b>	<b>2.2%</b>	<b>14.0%</b>	<b>7.4%</b>	<b>NA</b>	<b>NA</b>
<i>Citi 3-Month Treasury Bill</i>	<i>3.3%</i>	<i>4.1%</i>	<i>3.1%</i>	<i>NA</i>	<i>1.1%</i>	<i>4.7%</i>	<i>4.8%</i>	<i>3.0%</i>	<i>1.2%</i>	<i>1.1%</i>	<i>1.7%</i>	<i>4.1%</i>	<i>NA</i>	<i>NA</i>
Peer Ranking	1 <sup>st</sup>	2 <sup>nd</sup>	7 <sup>th</sup>	NA	3 <sup>rd</sup>	1 <sup>st</sup>	96 <sup>th</sup>	43 <sup>rd</sup>	7 <sup>th</sup>	69 <sup>th</sup>	1 <sup>st</sup>	57 <sup>th</sup>	NA	NA
Standard Deviation Ranking	87 <sup>th</sup>	99 <sup>th</sup>	99 <sup>th</sup>	NA										
<b>TSA</b>	<b>7.6%</b>	<b>3.4%</b>	<b>3.9%</b>	<b>6.0%</b>	<b>0.9%</b>	<b>7.0%</b>	<b>3.4%</b>	<b>4.0%</b>	<b>5.9%</b>	<b>4.1%</b>	<b>13.4%</b>	<b>8.0%</b>	<b>13.2%</b>	<b>-4.3%</b>
<i>Citi 3-Month Treasury Bill</i>	<i>6.8%</i>	<i>2.2%</i>	<i>4.0%</i>	<i>6.3%</i>	<i>-0.7%</i>	<i>6.6%</i>	<i>2.7%</i>	<i>5.3%</i>	<i>8.6%</i>	<i>5.9%</i>	<i>14.8%</i>	<i>7.3%</i>	<i>16.2%</i>	<i>-7.6%</i>
Peer Ranking	21 <sup>st</sup>	24 <sup>th</sup>	56 <sup>th</sup>	34 <sup>th</sup>	20 <sup>th</sup>	27 <sup>th</sup>	65 <sup>th</sup>	31 <sup>st</sup>	71 <sup>st</sup>	99 <sup>th</sup>	13 <sup>th</sup>	99 <sup>th</sup>	15 <sup>th</sup>	43 <sup>rd</sup>
Standard Deviation Ranking	60 <sup>th</sup>	61 <sup>st</sup>	33 <sup>rd</sup>	33 <sup>rd</sup>										

## Public Pension Fund – Traditional Manager Study

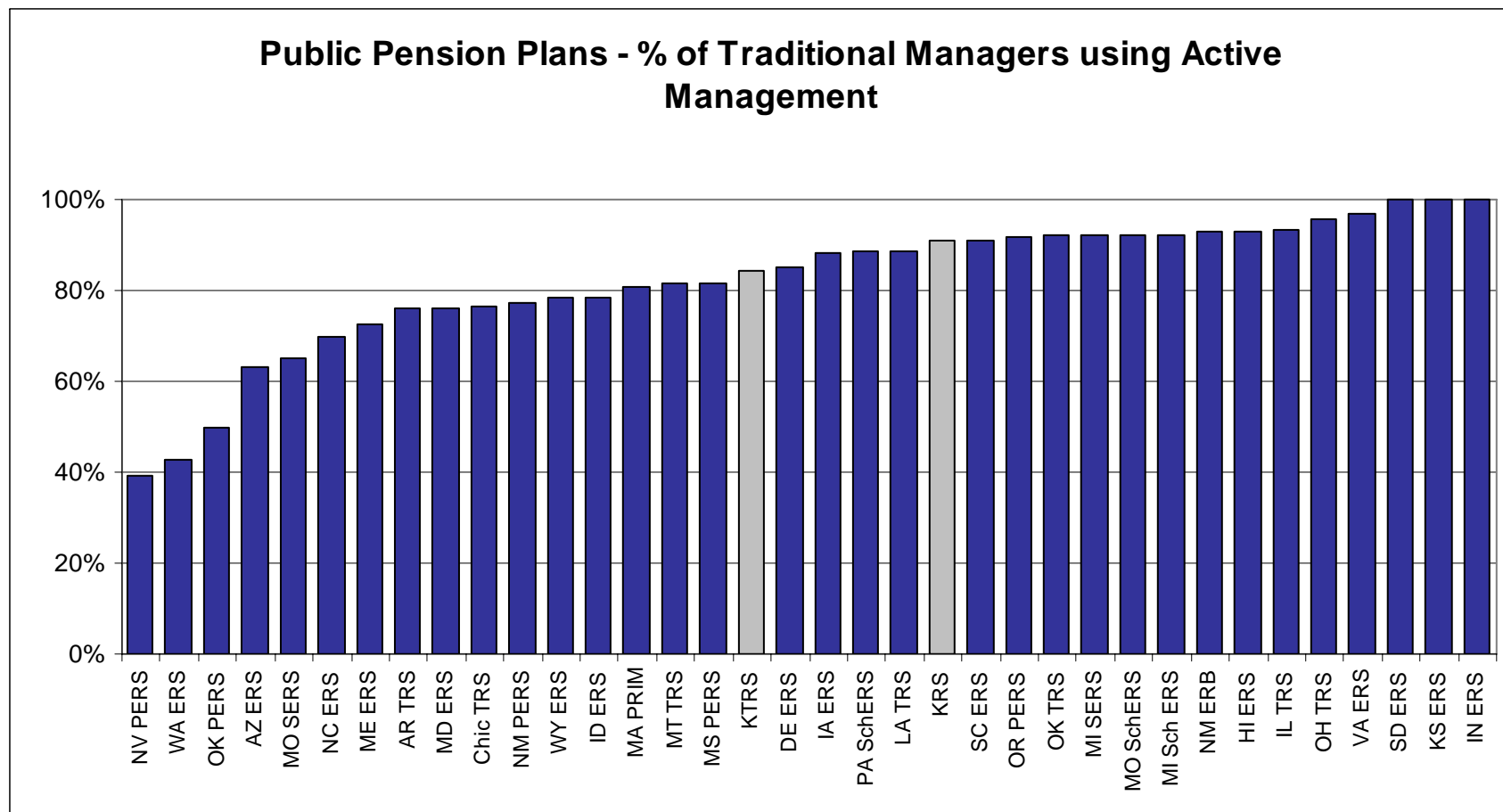
- Hammond Associates conducted a study analyzing the traditional managers of 9 teacher retirement plans, 15 state/public employee plans and 11 consolidated state plans.
- Both KRS and KTRS are near the median plan size in the study's universe.



Source: Hammond Associates internal research

## Public Pension Fund – Traditional Manager Study *(continued)*

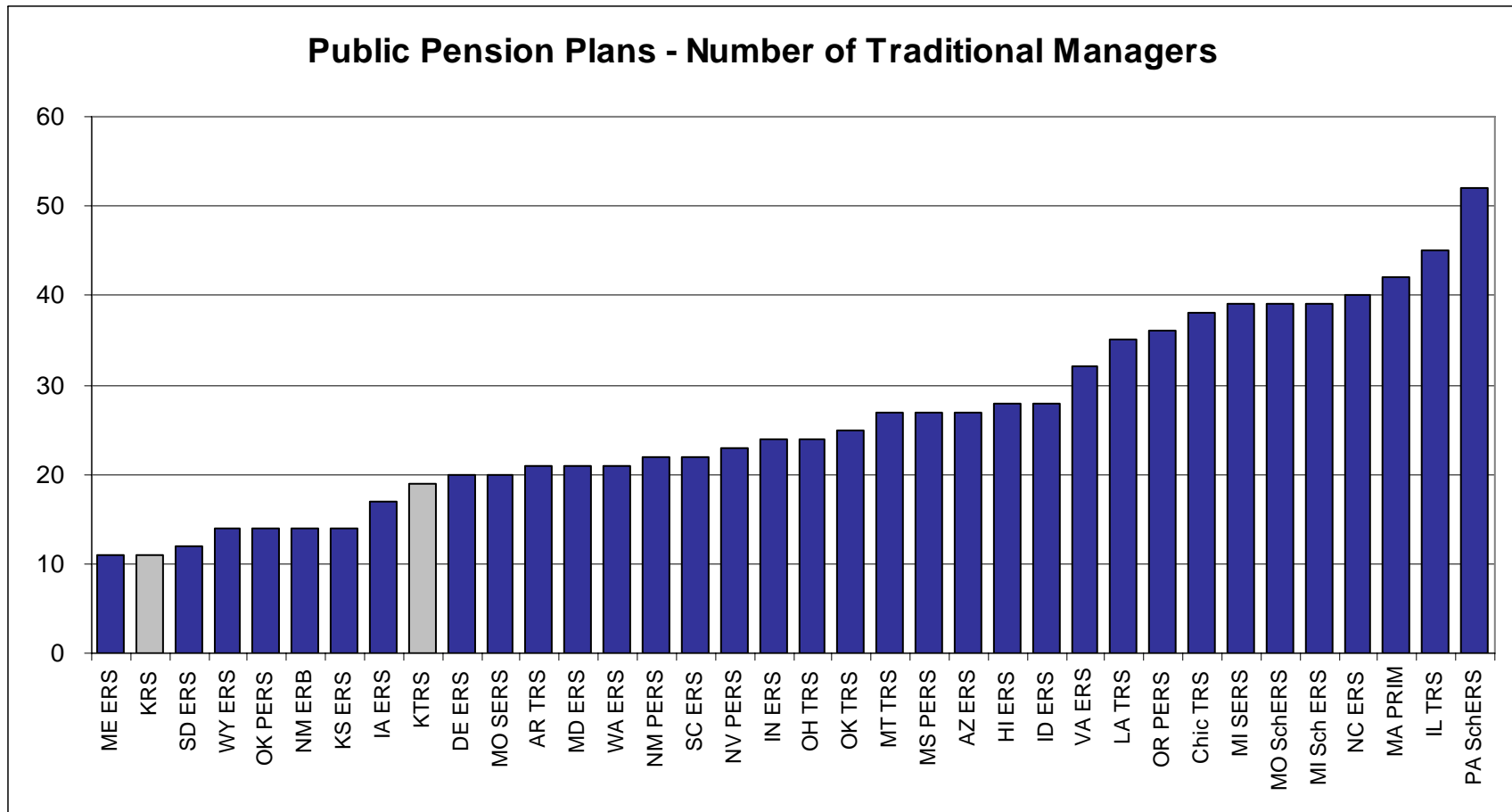
- Both KRS and KTRS are near the median for the percentage of active managers used versus passive managers.



*Source: Hammond Associates internal research*

## Public Pension Fund – Traditional Manager Study *(continued)*

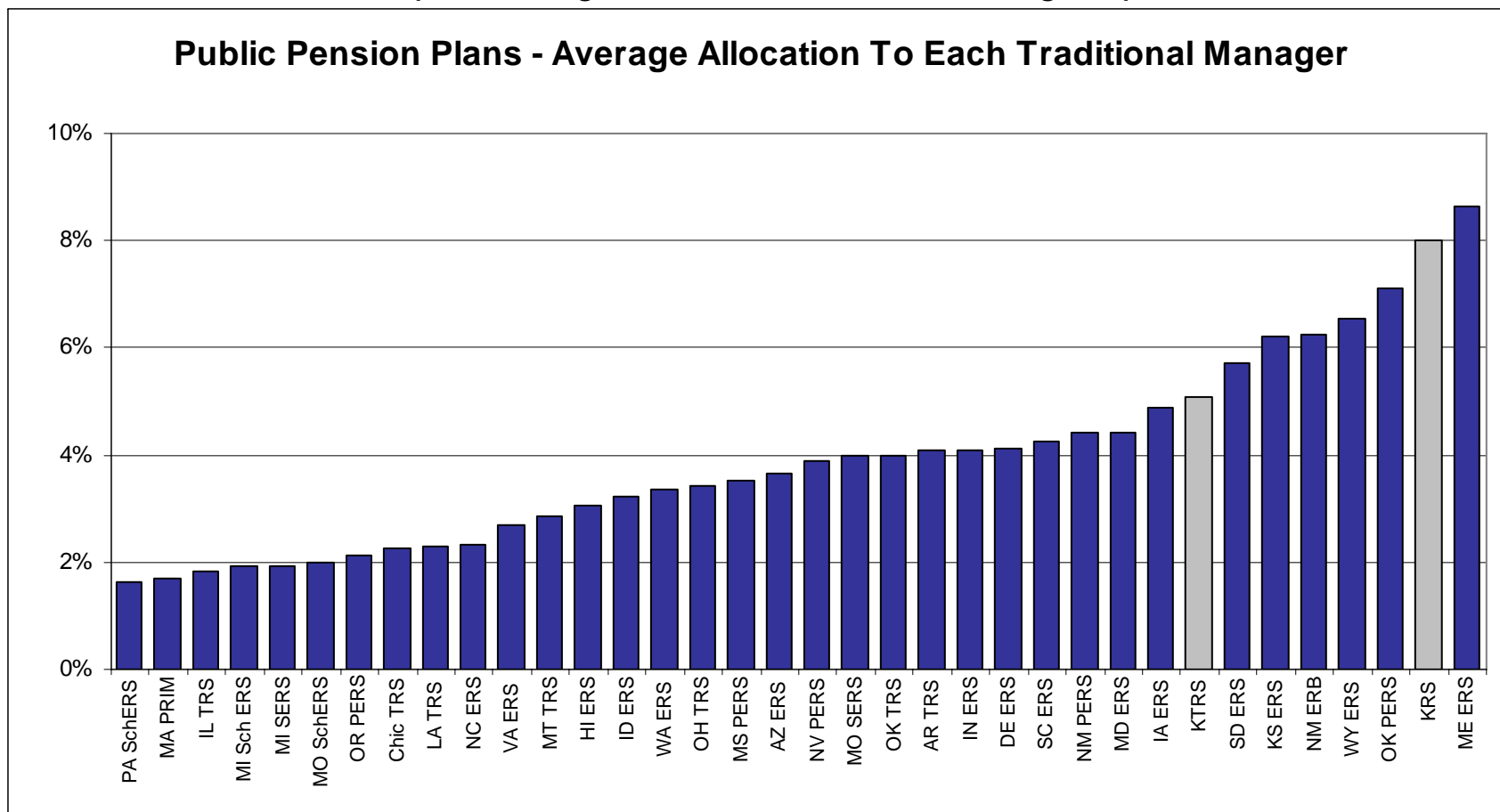
- KRS and KTRS have far fewer traditional managers than their peers.



*Source: Hammond Associates internal research*

## Public Pension Fund – Traditional Manager Study *(continued)*

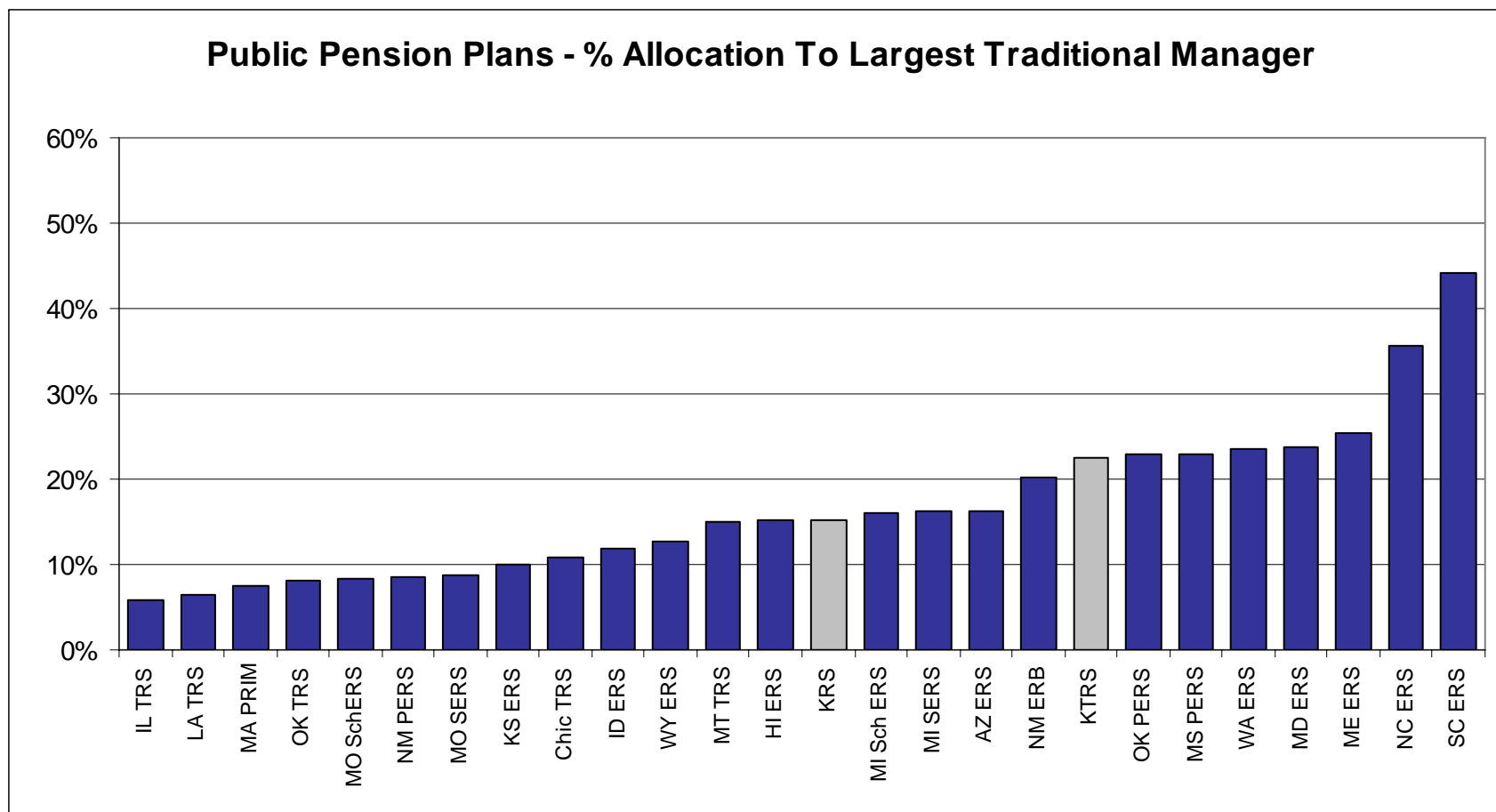
- Because KRS and KTRS have fewer traditional managers than their peers, the size of the investment with each traditional manager is much higher than the peer universe.
- The more concentrated positions give rise to additional manager specific risk.



Source: Hammond Associates internal research

## Public Pension Fund – Traditional Manager Study *(continued)*

- KRS has an allocation of approximately 15% to a single manager, Pyramis Global Investors.
- KTRS internally manages slightly more than 20% of its portfolio in an S&P 500 indexed fund.



*Source: Hammond Associates internal research*

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## VI. Opportunity Cost

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## Opportunity Cost

*What has been left on the table?*

- The actual returns for KRS and KTRS were compared to the median return of the Russell Mellon universe to determine the excess return in comparison to the benchmark.
- In most periods measured excess return was negative, indicating underperformance.
- The value of KRS Pension and KTRS was adjusted to account only for portfolio returns.
- The median fiscal year return of the Russell Mellon universe was applied to the beginning value of the fund to project fund growth.
- Assuming no compounding of the returns, the opportunity cost or lost return was as follows:
  - KRS Pension - \$1.2 billion
  - KTRS - \$2.6 billion
- Assuming that returns were compounded, the opportunity costs grows to the following:
  - KRS Pension \$1.5 billion
  - KTRS - \$3.5 billion
- The possible determinants of this lost opportunity include:
  - Asset allocation
  - Manager selection.

---

## Opportunity Cost *(continued)*

### *Asset Allocation (as of June 30, 2008)*

- Equity allocation
  - KRS has the same 34% allocation to U.S. equity and 20% allocation to international equity as the median Russell Mellon universe allocation.
  - KTRS has a higher allocation to U.S. equity (55% versus 35%) and a lower allocation to international equity (9% versus 20%) than its peers.
- Fixed Income
  - Both the KRS (24%) and KTRS (33%) fixed income allocation (including cash) is close to that of the peer universe (34%)
- Alternative Assets
  - Both KRS (10%) and KTRS (4%) have a lower allocation to alternative assets than the Russell Mellon universe (14%).

### *Manager selection*

- Manager selection and performance did not contribute to the systems' underperformance and likely improved performance.

***The underperformance of KRS and KTRS can be attributed to the asset allocation of each system.***

## Opportunity Cost Analysis – KRS Pension

	Adjusted Market Value	Actual Return	Russell Mellon Public Funds > \$1 Billion			Projected Value w/ Median Return	Cumulative Projected Value - Adjusted Value
			25 <sup>th</sup>	Median	75 <sup>th</sup>		
6/30/98	10,470.8						
6/30/99	11,965.0	14.3%	12.7%	11.2%	10.2%	11,643.5	(321.5)
6/30/00	12,731.9	6.4%	14.1%	10.8%	8.9%	12,901.0	169.1
6/30/01	12,043.1	-5.4%	-2.1%	-5.9%	-7.3%	12,139.9	96.7
6/30/02	11,525.3	-4.3%	-4.0%	-5.7%	-7.3%	11,447.9	(77.4)
6/30/03	12,019.7	4.3%	5.6%	3.8%	2.9%	11,882.9	(136.8)
6/30/04	13,652.0	13.6%	18.8%	17.5%	15.0%	13,962.4	310.4
6/30/05	14,916.2	9.3%	13.4%	11.1%	10.0%	15,512.3	596.1
6/30/06	16,360.1	9.7%	14.7%	11.9%	9.6%	17,358.2	998.2
6/30/07	18,858.2	15.3%	19.1%	17.9%	16.5%	20,465.3	1,607.1
6/30/08	18,064.3	-4.2%	-2.2%	-4.3%	-5.3%	<b>19,585.3</b>	<b>1,521.0</b>

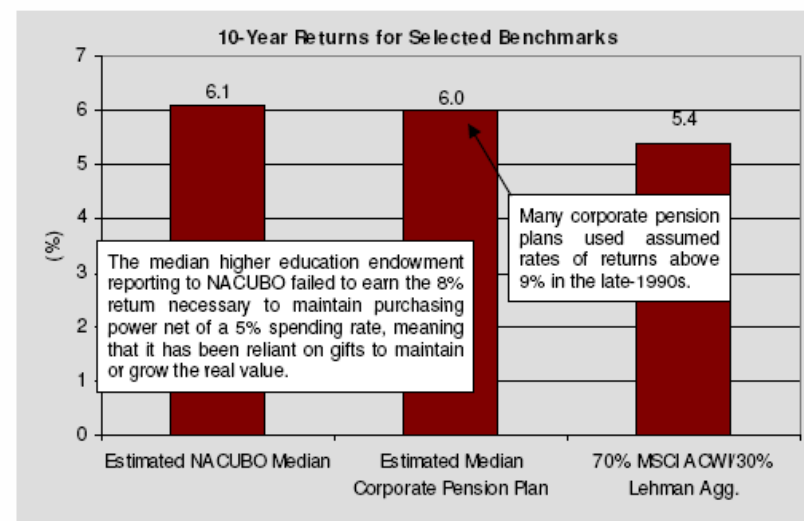
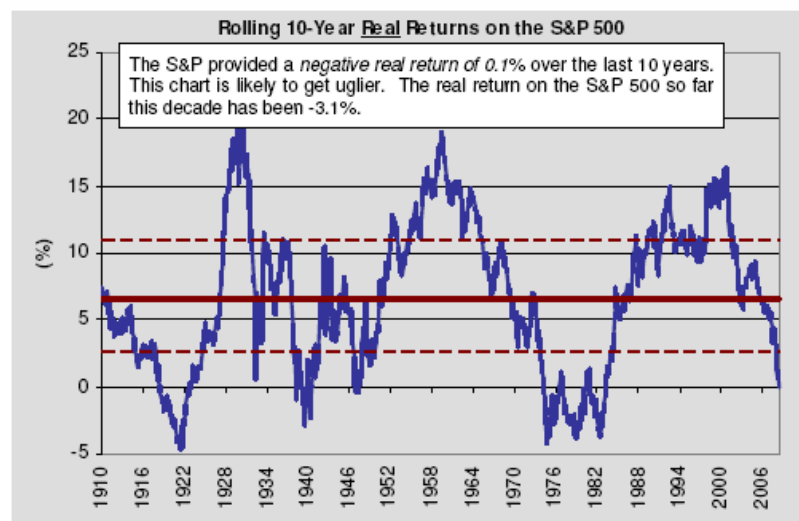
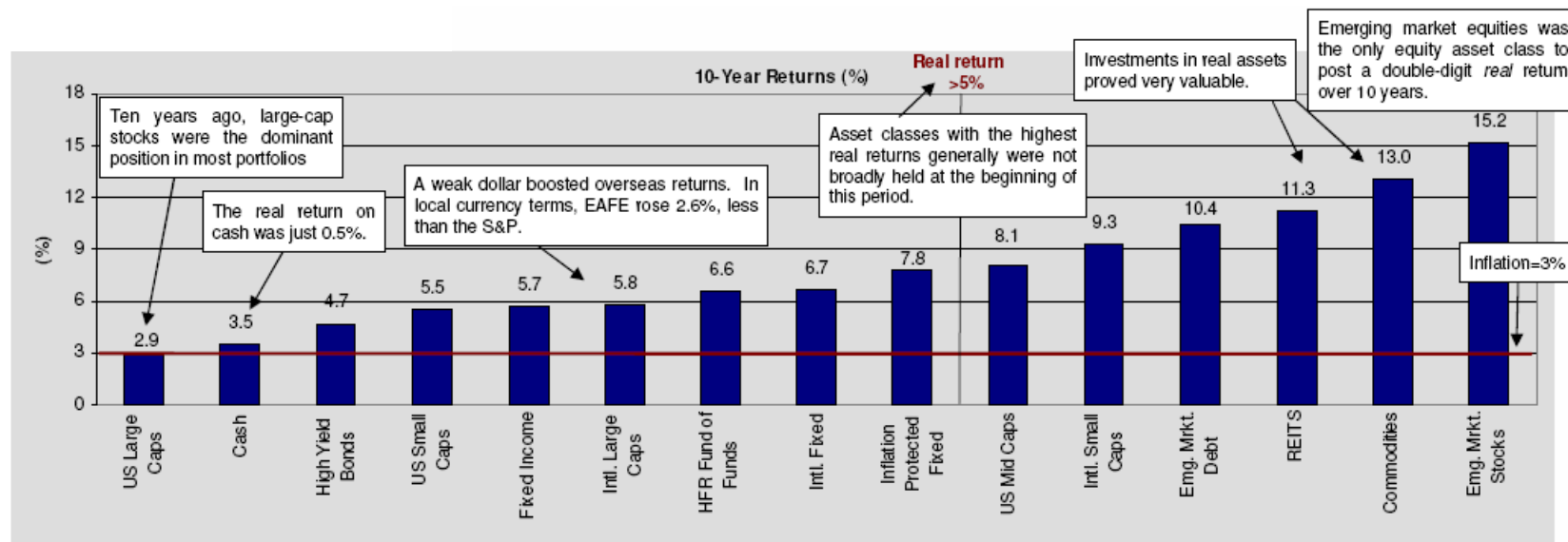
## Opportunity Cost Analysis – KTRS

	Adjusted Market Value	Actual Return	Russell Mellon Public Funds > \$1 Billion			Projected Value w/ Median Return	Cumulative Projected Value - Actual Value
			25 <sup>th</sup>	Median	75 <sup>th</sup>		
6/30/98	11,223.9						
6/30/99	12,514.7	11.5%	12.7%	11.2%	10.2%	12,481.0	(33.7)
6/30/00	12,965.2	3.6%	14.1%	10.8%	8.9%	13,829.0	863.7
6/30/01	12,874.5	-0.7%	-2.1%	-5.9%	-7.3%	13,013.1	138.6
6/30/02	12,346.6	-4.1%	-4.0%	-5.7%	-7.3%	12,271.3	(75.3)
6/30/03	12,939.2	4.8%	5.6%	3.8%	2.9%	12,737.6	(201.6)
6/30/04	14,194.3	9.7%	18.8%	17.5%	15.0%	14,966.7	772.4
6/30/05	15,258.9	7.5%	13.4%	11.1%	10.0%	16,628.0	1,369.1
6/30/06	16,098.2	5.5%	14.7%	11.9%	9.6%	18,606.7	2,508.6
6/30/07	18,545.1	15.2%	19.1%	17.9%	16.5%	21,937.3	3,392.3
6/30/08	17,469.5	-5.8%	-2.2%	-4.3%	-5.3%	<b>20,994.0</b>	<b>3,524.6</b>

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## VII. Asset Allocation

## Ten Lean Years for Investors *(as of 6/30/08)*



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## Asset Allocation Strategy

- We live in a low return world. Real interest rates (~1.5%) are low and equity risk premiums are below the long-term average. **A traditional 60% stock / 40% bond portfolio is very unlikely to earn a typical 5% real return requirement to offset spending over the coming decade.**
- With current real yields below 1.5%, Treasuries are far from enough to cover most institutions' return need. Credit spreads have widened materially since bottoming June 2007. Investment-grade credit is attractive relative to Treasuries.
- Assuming US stocks continue to trade at today's elevated valuations, they are priced to provide a 4.5% real return in the future. A contraction in valuations risks pushing the real return even lower. Unlike several years ago, there are now few opportunities to add value within the U.S. market.
  - At the beginning of 2000, value was relatively cheap, but now looks overvalued relative to the broad market. At the beginning of 1999, small-caps (particularly small-value) were very attractive relative to large-caps; but they now appear overvalued.
  - Hammond Associates has historically tilted towards value and small-caps due to academic evidence on their long-term performance advantage. We do not recommend tilts towards these areas at this time. Instead, we recommend tilting towards large-cap growth stocks, with a particular focus on high quality growth stocks.
- International equities remain more attractive than US equities, but offer far less potential for outperformance than they did earlier this decade.
  - On a valuation basis international developed stocks are modestly more attractively priced than U.S. stocks.
  - The dollar was massively overvalued several years ago, and subsequently plunged. Looking forward, the dollar likely needs to fall further on a trade-weighted basis because the trade deficit remains unsustainably high. However, European currencies that dominate the MSCI EAFE index look overvalued versus the buck. The dollar is most likely to weaken against Asian currencies.
  - The valuations of emerging market stocks appear stretched. We believe they still offer the highest long-term return potential among equity asset classes, but the downside risk is increasing. In particular, we are concerned about their reliance on developed economies for economic and profit growth.
  - Hammond Associates recommends avoiding home country bias and weight US and international similar to how they appear in global markets (43% US / 57% international).

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## Asset Allocation Strategy *(continued)*

- The flood of money into alternative asset classes has reduced opportunities. However, with traditional asset classes still priced to provide very low returns, we believe alternative asset classes should play a significant role in a diversified portfolio.
  - Hedge funds manage well over \$1 trillion in capital (and much more when leverage is considered). The reward for investing in common arbitrage opportunities, such as convertible and merger, has diminished. Many hedge funds are moving into more illiquid assets and that trend is likely to continue. While aggregate returns from hedge funds are likely to be below most investors' expectations, we are confident in the small group of managers that we work with.
  - The credit crunch and uncertain future exit valuations are risks for buyouts. We are focusing on small and mid-market funds that bring operating expertise, while avoiding larger funds that are more dependant on debt. Venture capital and distressed debt offer more promise.
  - A risk of rising capitalization rates and higher debt costs pose risk for real estate portfolios. We continue to focus on value-added partnerships. Energy remains attractive long-term investment.
- Conclusion: **Diversify**
  - There's little reason to make large bets on particular asset classes or strategies when the expected return premium is modest and there is a high potential for error.
  - Watch for new opportunities and capitalize on them.

## 2007 NACUBO Study – Nominal Returns

<i>Investment Pool Nominal Returns (%)</i>				
<i>Years Ended June 30, 2007</i>				
	<i>Average Annual Compound Returns</i>			
	<i>1 Year</i>	<i>3 Years</i>	<i>5 Years</i>	<i>10 Years</i>
	<i>2007</i>	<i>2005-2007</i>	<i>2003-2007</i>	<i>1998-2007</i>
In Aggregate:				
Equal-Weighted Mean	17.2	12.4	11.1	8.6
Dollar-Weighted Mean	21.5	16.8	14.4	11.7
Median	17.5	12.3	11.3	8.4
By Endowment Size:				
<i>(Equal-Weighted mean)</i>				
Less than or equal to \$25 million	14.1	9.7	8.8	6.7
\$26 million to \$50 million	15.9	10.7	9.8	7.3
\$51 million to \$100 million	16.7	11.9	10.8	7.9
\$101 million to \$500 million	18.0	13.1	11.5	8.5
\$501 million to \$1 billion	19.3	14.2	12.3	9.5
Over \$1 billion	21.3	16.4	13.9	11.1
<i>KRS Pension Fund</i>	<i>15.3</i>	<i>11.4</i>	<i>10.4</i>	<i>8.1</i>
<i>KRS Insurance Fund</i>	<i>19.3</i>	<i>13.7</i>	<i>12.3</i>	<i>8.4</i>
<i>KTRS</i>	<i>15.3</i>	<i>9.3</i>	<i>8.5</i>	<i>7.1</i>
By Type:				
<i>(Equal-Weighted mean)</i>				
Public	16.8	11.9	10.8	8.2
Independent	17.5	12.7	11.3	8.8

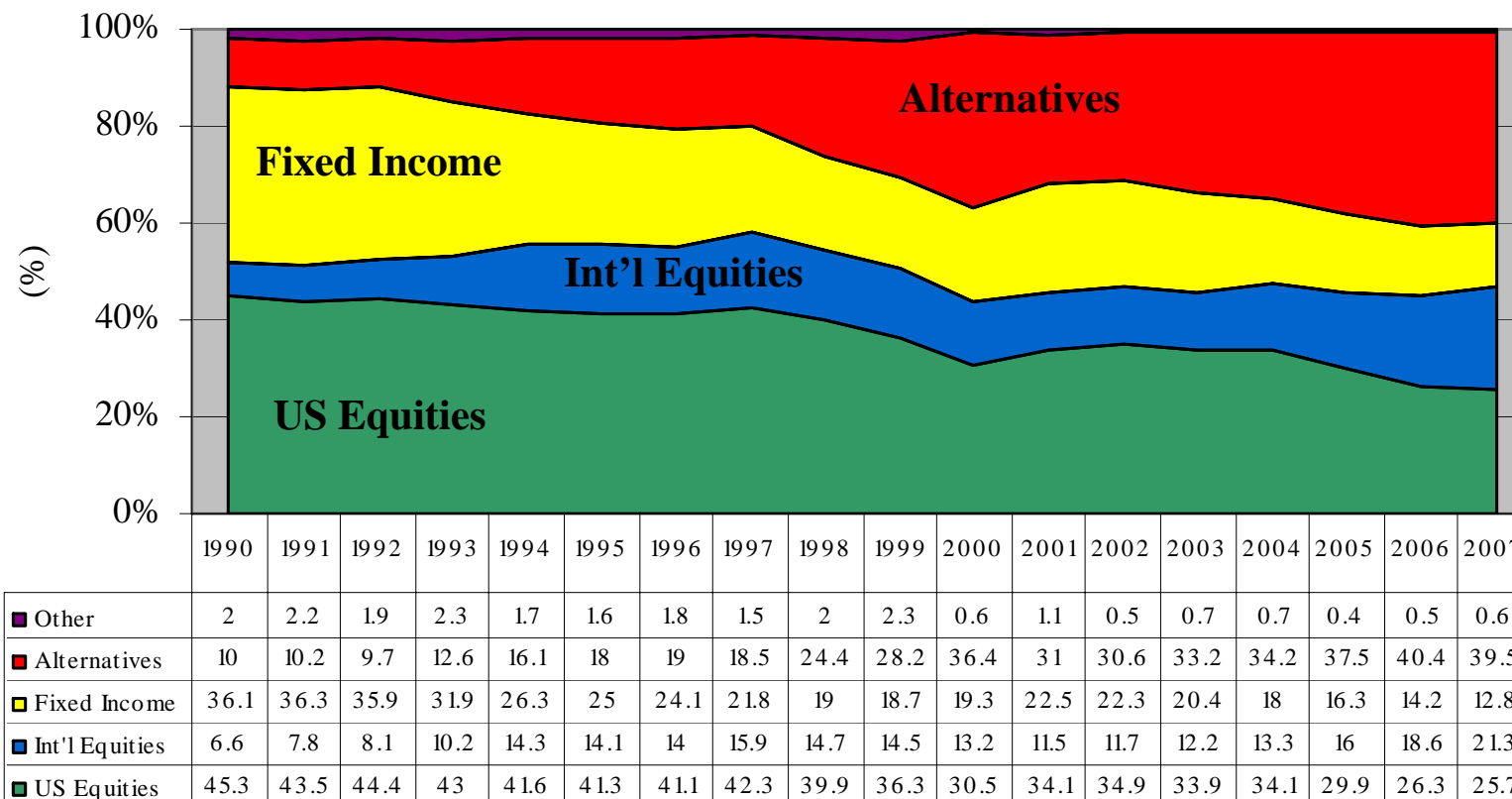
*Source: NACUBO: National Association of College and University Business Officers*

## 2007 NACUBO Study – Asset Allocation

<i>Investment Pool Asset Allocation (%)</i>							
<i>As of June 30, 2007</i>							
<i>Responding Institutions (778)</i>	<i>U.S. Stocks</i>	<i>Int'l Stocks</i>	<i>Fixed and Cash</i>	<i>Private Equity</i>	<i>Hedge Funds</i>	<i>Real Assets</i>	<i>Other</i>
In Aggregate:							
Equal-Weighted Mean	42.1	15.4	22.1	3.2	10.6	4.9	1.4
Dollar-Weighted Mean	26.7	20.8	14.1	9.0	18.2	10.2	1.0
By Investment Pool Size: ( <i>Equal-Weighted Mean</i> )							
Less than or equal to \$25 million	49.3	10.2	33.9	0.6	2.9	2.1	0.9
\$26 million to \$50 million	50.7	12.4	24.3	0.6	6.9	3.8	1.0
\$51 million to \$100 million	45.2	14.9	23.0	1.6	8.7	4.9	1.8
\$101 million to \$500 million	38.8	17.8	17.9	3.9	13.8	5.8	2.0
\$501 million to \$1 billion	30.4	20.1	15.7	7.7	17.7	7.7	0.8
Over \$1 billion	25.7	21.3	12.8	10.4	20.5	8.6	0.6
<i>KRS Pension Fund</i>	<i>38.4</i>	<i>18.4</i>	<i>36.3</i>	<i>3.5</i>	<i>0.0</i>	<i>3.5</i>	<i>0.0</i>
<i>KRS Insurance Fund</i>	<i>55.5</i>	<i>20.4</i>	<i>18.3</i>	<i>2.9</i>	<i>0.0</i>	<i>2.9</i>	<i>0.0</i>
<i>KTRS</i>	<i>58.4</i>	<i>6.7</i>	<i>32.4</i>	<i>0.0</i>	<i>0.0</i>	<i>2.5</i>	<i>0.0</i>
By Type: ( <i>Equal-Weighted Mean</i> )							
Public	42.4	14.7	26.5	2.6	8.4	4.1	1.6
Independent	42.0	15.8	19.8	3.5	11.9	5.4	1.4

*Source: NACUBO: National Association of College and University Business Officers*

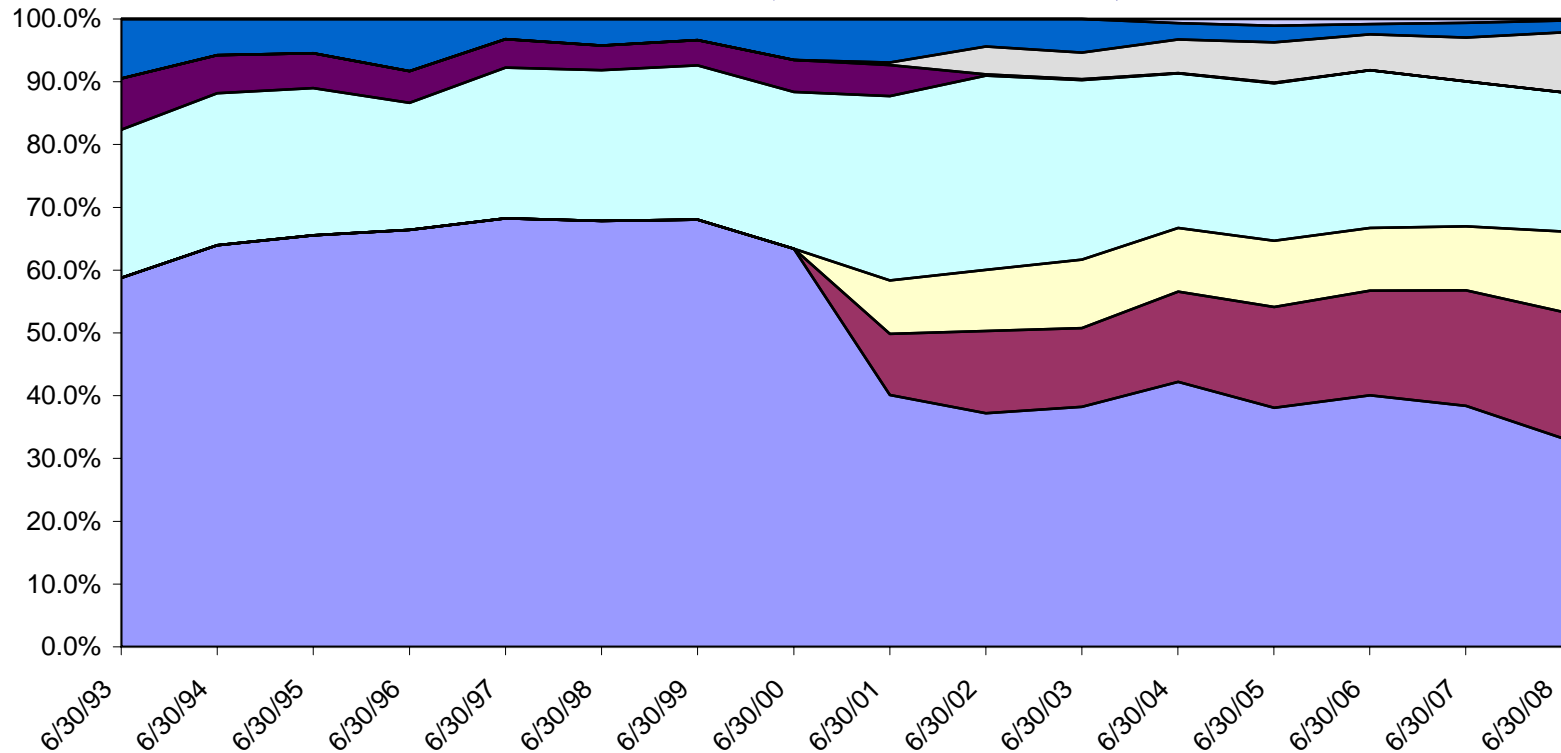
## Asset Allocation for the Largest NACUBO Reporting Institutions



*Notes: From 1990 through 1997, largest NACUBO reporting institution category exceeded \$400 million. For 1998 through 2007, the largest category exceeded \$1 billion.*

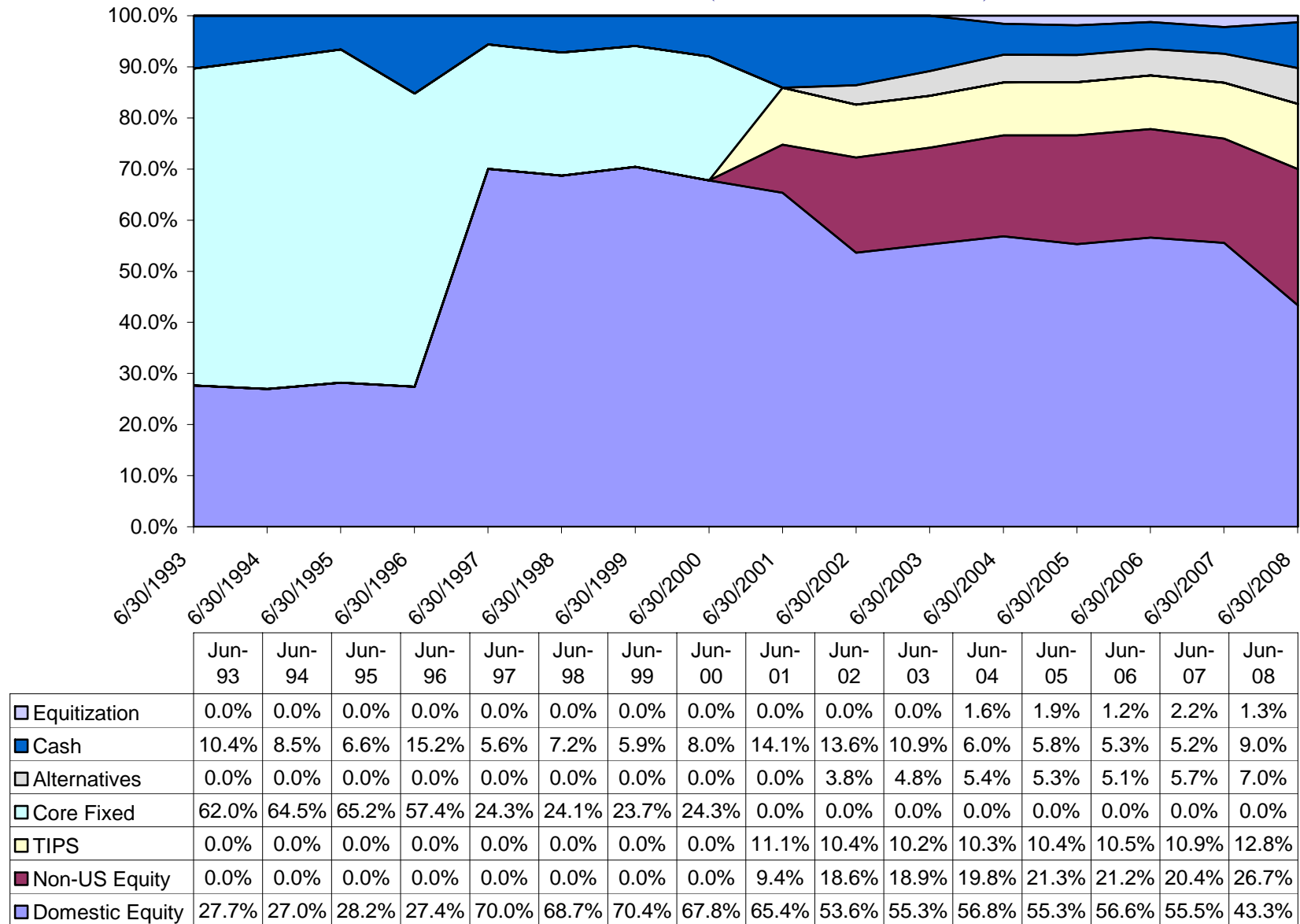
- Since 1990, the largest NACUBO reporting institutions have significantly altered their asset allocations.
- Allocations to international equities and, especially, alternative investments have increased, while allocations to U.S. equities and fixed income have trended downward.
- These trends may be the result of institutional investors seeking higher returning or less-correlated asset classes.

## KRS Pension Fund Asset Allocation (6/30/1993 – 6/30/2008)

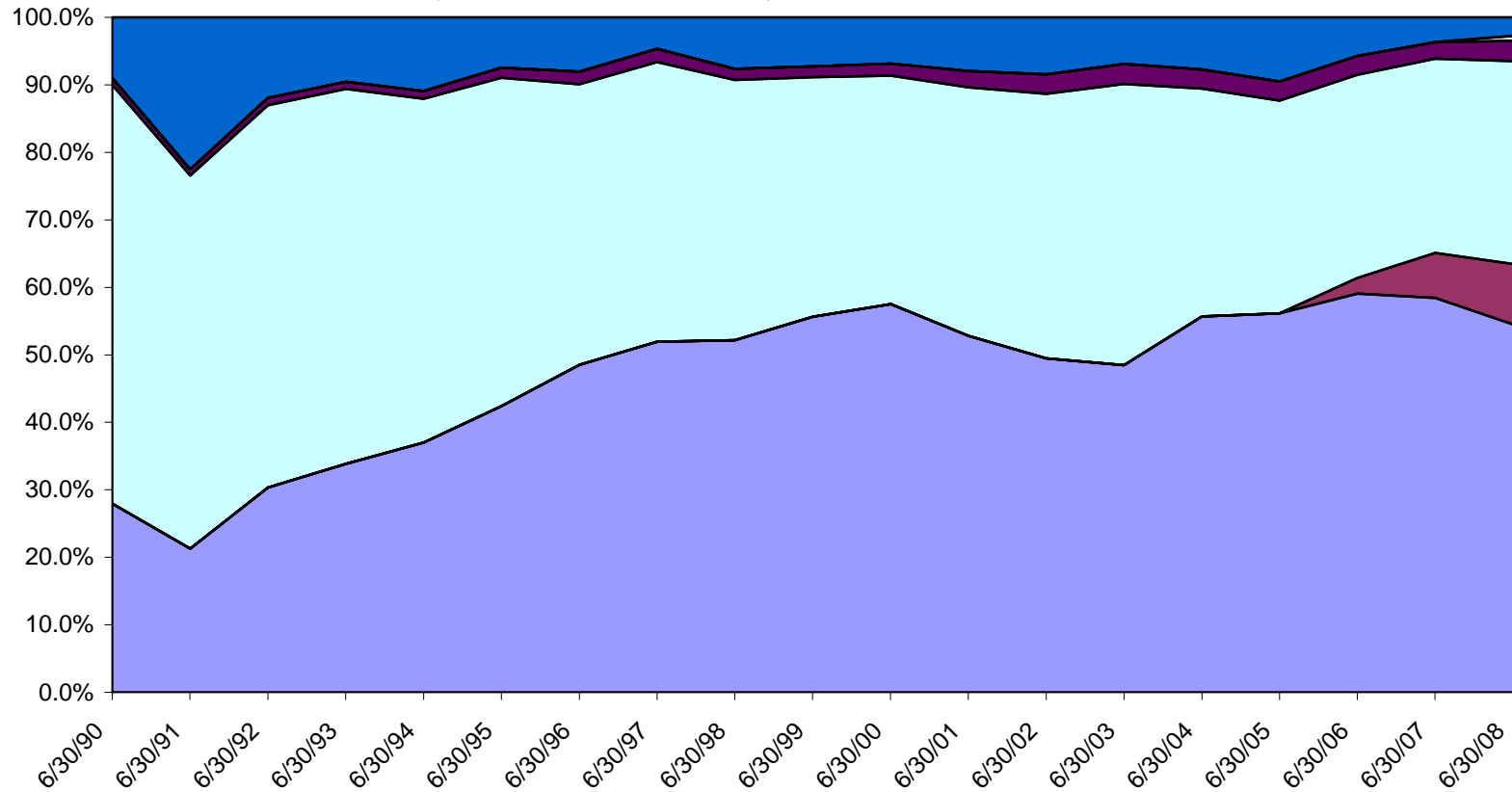


	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	Jun-07	Jun-08
Equitization	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	1.1%	0.8%	0.6%	0.3%
Cash	9.5%	5.8%	5.4%	8.3%	3.2%	4.2%	3.4%	6.5%	7.0%	4.4%	5.4%	2.6%	2.6%	1.6%	2.4%	1.9%
Alternatives	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	4.4%	4.2%	5.3%	6.5%	5.7%	7.0%	9.6%
Real Estate	8.1%	6.1%	5.6%	5.0%	4.5%	4.0%	4.0%	5.1%	5.0%	0.2%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%
Core Fixed	23.6%	24.2%	23.5%	20.2%	24.0%	24.0%	24.6%	25.0%	29.4%	30.9%	28.6%	24.6%	25.1%	25.1%	23.1%	22.1%
TIPS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.5%	9.7%	10.9%	10.2%	10.5%	10.0%	10.2%	12.8%
Non-US Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.7%	13.1%	12.5%	14.4%	16.1%	16.6%	18.4%	20.2%
U.S. Equity	58.8%	64.0%	65.6%	66.4%	68.2%	67.9%	68.1%	63.4%	40.1%	37.2%	38.2%	42.2%	38.1%	40.1%	38.4%	33.2%

## KRS Insurance Fund Asset Allocation (6/30/1993 – 6/30/2008)



## KTRS Asset Allocation (6/30/1990 – 6/30/2008)



	Jun-90	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	Jun-01	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	Jun-07	Jun-08
■ Cash	9.0%	22.5%	11.9%	9.6%	10.9%	7.5%	8.0%	4.7%	7.6%	7.3%	6.8%	7.9%	8.5%	6.9%	7.7%	9.5%	5.7%	3.6%	2.7%
□ Alternatives	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%
■ Real Estate	1.0%	0.9%	1.1%	1.0%	1.1%	1.5%	1.9%	2.0%	1.7%	1.6%	1.8%	2.4%	2.9%	3.0%	2.8%	2.8%	2.8%	2.5%	3.0%
□ Core Fixed	62.1%	55.3%	56.7%	55.6%	50.9%	48.7%	41.6%	41.4%	38.6%	35.5%	33.9%	36.8%	39.2%	41.7%	33.8%	31.5%	30.1%	28.8%	30.1%
■ Non-US Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	6.7%	9.0%
■ U.S. Equity	27.9%	21.3%	30.3%	33.8%	37.0%	42.4%	48.5%	51.9%	52.2%	55.6%	57.5%	52.8%	49.5%	48.5%	55.7%	56.2%	59.1%	58.4%	54.5%

# Asset Allocations Analysis

Asset Class	KRS Proposed L-T Target	KRS Actual Allocation 6/30/08	KTRS 2008-2009 Target	KTRS Act. Allocation 6/30/08	70% S&P/ 30% LBAG	NACUBO >\$1B	Yale Policy 6/30/07	Harvard Policy 1/1/08	OFM Peer Universe Average	RM Public Plans > \$1B	HA Research Portfolio
	A	B	C	D	E	F	G	H	I	J	K
<b>Growth Assets</b>											
US All-Cap Stocks	30%					26%	11%	12%	44%	34%	
US Large Stocks		29%	45%	36%	70%						7%
US Large Growth Stocks				5%							4%
US Large Quality Stocks											4%
US Large Value Stocks				7%							
US Mid Stocks			5%	4%							
US Small Stocks		5%	3%	3%							
US Equity	30%	34%	53%	55%	70%	26%	11%	12%	44%	34%	15%
Intl Large Stocks	22%	20%	11%	9%		16%	6%	12%	18%	20%	16%
Intl Emerging Market Stocks	5%					5%	9%	10%			4%
Intl Equity	27%	20%	11%	9%	0%	21%	15%	22%	18%	20%	20%
Private Equity / Special Situations	7%	7%	2%	0%		10%	19%	11%	3%	8%	15%
<b>Total Growth Assets</b>	<b>64%</b>	<b>61%</b>	<b>66%</b>	<b>64%</b>	<b>70%</b>	<b>57%</b>	<b>45%</b>	<b>45%</b>	<b>65%</b>	<b>61%</b>	<b>50%</b>
<b>Risk Reduction Assets</b>											
Cash	1%	2%	2%	2%		2%		-5%	2%	4%	
US / Global Fixed Income	10%	22%	28%	31%	30%	11%	4%	8%	27%	30%	10%
US High Yield Fixed	5%							1%			
Intl Emg Market Debt	5%										
Hedge Funds						21%	23%	18%			20%
<b>Total Risk Reduction Assets</b>	<b>21%</b>	<b>24%</b>	<b>30%</b>	<b>33%</b>	<b>30%</b>	<b>34%</b>	<b>27%</b>	<b>22%</b>	<b>29%</b>	<b>33%</b>	<b>30%</b>
<b>Inflation Protection Assets</b>											
US Inflation Protected Fixed	5%	13%							2%		5%
Real Assets	10%	3%	4%	4%		9%	28%	33%	5%	6%	15%
<b>Total Inflation Protection Assets</b>	<b>15%</b>	<b>16%</b>	<b>4%</b>	<b>4%</b>	<b>0%</b>	<b>9%</b>	<b>28%</b>	<b>33%</b>	<b>7%</b>	<b>6%</b>	<b>20%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

# Asset Allocations Analysis

Asset Class	KRS Proposed L-T Target	KRS Actual Allocation 6/30/08	KTRS 2008-2009 Target	KTRS Act. Allocation 6/30/08	70% S&P/ 30% LBAG	NACUBO >\$1B	Yale Policy 6/30/07	Harvard Policy 1/1/08	OFM Peer Universe Average	RM Public Plans > \$1B	HA Research Portfolio
	A	B	C	D	E	F	G	H	I	J	K
<b>Return</b>											
L/T Compound Expected Return	8.2%	7.5%	7.4%	7.2%	7.1%	8.7%	9.7%	9.4%	7.5%	7.8%	8.9%
10 Yr. Horizon Expected Return	7.5%	6.7%	6.6%	6.3%	6.2%	8.0%	9.0%	8.8%	6.7%	7.0%	8.5%
<b>Risk (L/T Expectations)</b>											
Standard Deviation (1 Yr.)	±12.3%	±10.8%	±11.9%	±11.6%	±12.9%	±11.3%	±12.0%	±11.7%	±11.5%	±11.2%	±10.9%
Probability of Loss Year	23.4%	22.9%	24.9%	24.8%	27.2%	20.6%	19.5%	19.6%	24.0%	22.8%	19.3%
Probability of 10% or Worse Loss	6.2%	4.7%	6.4%	6.1%	8.4%	4.4%	4.5%	4.4%	5.8%	5.1%	3.7%
Lowest Likely Return (1 Yr.)	-19.7%	-17.1%	-19.6%	-19.1%	-22.2%	-17.0%	-17.6%	-17.2%	-18.7%	-17.7%	-15.9%
Sharpe Ratio	0.34	0.32	0.29	0.28	0.24	0.41	0.47	0.46	0.31	0.34	0.45
<b>Risk (10-Yr Horizon Expectations)</b>											
Probability of Loss Year	25.3%	24.9%	27.2%	27.4%	29.5%	22.4%	21.0%	21.1%	26.3%	24.9%	20.4%
Probability of 10% or Worse Loss	7.0%	5.4%	7.4%	7.1%	9.5%	5.0%	5.0%	4.9%	6.7%	5.8%	4.0%
Lowest Likely Return (1 Yr.)	-20.5%	-17.8%	-20.4%	-19.9%	-23.1%	-17.7%	-18.2%	-17.8%	-19.5%	-18.5%	-16.3%
Sharpe Ratio	0.32	0.30	0.26	0.25	0.21	0.40	0.46	0.45	0.28	0.31	0.46
<b>Probability of Achieving</b>											
<b>7.5% Goal Return</b>											
Based on L/T Compound Return	57.5%	49.5%	48.9%	45.7%	45.7%	63.0%	72.1%	69.6%	50.4%	53.1%	65.8%
Based on 10 Yr. Horizon Return (10 Yr.)	49.8%	40.4%	40.0%	35.9%	37.2%	55.3%	66.0%	63.5%	41.3%	44.7%	61.2%
<b>Probability of Achieving</b>											
<b>7.75% Goal Return</b>											
Based on L/T Compound Return	54.9%	46.6%	46.2%	44.3%	43.2%	60.2%	69.8%	67.1%	47.6%	50.3%	63.1%
Based on 10 Yr. Horizon Return (10 Yr.)	47.3%	38.3%	37.5%	34.9%	34.9%	52.5%	63.5%	60.9%	38.7%	41.9%	58.3%

# Long-Term Asset Class Expectations

Asset Class	Compound Expected Return	Expected Standard Deviation
<b>Growth Assets</b>		
US Large Stocks	7.5	17.5
US Mid Stocks	8.0	19.0
US Small Stocks	8.5	22.0
Intl Large Stocks	7.5	18.0
Intl Small Stocks	8.5	19.0
Intl Emerging Market Stocks	9.5	27.0
Private Equity	12.5	27.0
<b>Risk Protection Assets</b>		
US Fixed Income	5.2	5.5
Cash	4.0	0.5
Hedge Funds	8.0	7.0
<b>Inflation Protection Assets</b>		
US Inflation Protected Bonds	4.7	5.0
Real Assets	8.5	12.5

This represents our long-term expected return on stocks when they are priced at equilibrium. Current valuations appear to be above equilibrium.

Small-cap stocks are expected to outperform large-cap stocks by 1% and value stocks are expected to outperform broad stock allocations.

Over the long-term, we expect US stocks and international developed market stocks to provide similar returns.

We expect cash to earn 4.0% nominal (based on 2.5% inflation) over the long-term. All other asset class returns are built off the cash rate.

Inflation-protected bonds are expected to underperform a broad US fixed income allocation (as proxied by the Lehman Aggregate Bond index) because a broad fixed allocation has exposure to credit spreads.

## Methodology for Determining Asset Class Expectations

Our approach to developing long-term forecasts blends realized historical results and an examination of current conditions. In developing the forecasts, we begin by averaging historical data for the longest period available to determine how much investors have been rewarded for exposure to risk factors in the past. We then use internal and external research to identify structural reasons that risk premiums in the future might be different than those experienced in the past, and adjust our forecasts accordingly. This methodology generally results in lower return forecasts, particularly for equity asset classes, than have been experienced in the past.

*Note: The return expectations do not include manager alpha except for absolute return strategies. The expected return in excess of cash for absolute return strategies consists mostly of expected alpha.*

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## 10-Year Horizon Expected Returns

Asset Class	L/T Expected Return	10-Year Horizon Returns
<b>Growth Assets</b>		
US Large Stocks	7.5	6.5
US Large Value Stocks	8.0	5.5
US Large Growth Stocks	7.0	7.5
US Large Quality Stocks	8.0	8.0
US Mid Stocks	8.0	6.0
US Small Stocks	8.5	5.5
US Small Value Stocks	9.5	5.5
Intl Large Stocks	7.5	7.5
Intl Small Stocks	8.5	6.5
Intl Emerging Market Stocks	9.5	6.5
Private Equity	12.5	11.5
<b>Risk Protection Assets</b>		
Cash	4.0	3.5
Fixed Income	5.2	4.6
Hedge Funds	8.0	8.0
<b>Inflation Protection Assets</b>		
US Inflation Protected Bonds	4.7	3.9
Real Assets	8.5	8.5

### 10-Year Expectations – Rationale

- The long-term expectations represent the expected returns of asset classes at equilibrium. They are an estimate of what investors require to invest in each asset class, given the risk, in a normal interest rate environment. They are not affected by current valuations.
- Given their lofty valuations, many asset classes appear to be priced above equilibrium. In other words, their current expected return is below the equilibrium expected return. The horizon expectations are an estimate of the return over the next 10-years assuming all asset classes finish the period at equilibrium.
- Equities are priced to provide low returns in the future. At equilibrium real interest rates, we estimate that the S&P 500 should trade at a normalized P/E ratio of roughly 20. At a P/E ratio of 20, stocks would be priced to provide a risk premium to long-term TIPS bonds of 2.5%.
- If the normalized P/E ratio on the S&P 500 falls to 20 over the next 10 years, we estimate that the S&P 500 will earn a nominal return of 5.5%, versus the long-term expected return of 7.5%.

## Correlation Assumptions

	US Large Stocks US Mid Stocks US Small Stocks REITs				Intl Large Stocks Intl Small Stocks Intl Emerging Market Stocks			US Fixed Income US Inflation Protected Fixed US High Yield Fixed Cash				Real Assets Private Equity Hedge Funds		
US Large Stocks	-	0.90	0.80	0.50	0.65	0.50	0.60	0.35	0.20	0.55	(0.05)	0.35	0.70	0.35
US Mid Stocks		-	0.90	0.50	0.60	0.50	0.60	0.30	0.20	0.55	(0.05)	0.35	0.75	0.35
US Small Stocks			-	0.55	0.55	0.50	0.55	0.25	0.15	0.60	(0.10)	0.35	0.80	0.40
Intl Large Stocks					-	0.85	0.60	0.20	0.10	0.40	(0.10)	0.30	0.50	0.25
Intl Small Stocks						-	0.60	0.15	0.10	0.40	(0.10)	0.30	0.50	0.30
Intl Emerging Market Stocks							-	0.10	0.10	0.50	(0.15)	0.45	0.45	0.40
US Fixed Income								-	0.60	0.40	0.00	0.15	0.25	0.30
US Inflation Protected Fixed									-	0.30	0.10	0.35	0.15	0.20
US High Yield Fixed										-	(0.10)	0.25	0.60	0.40
Cash											-	0.00	(0.10)	0.10
Real Assets												-	0.50	0.30
Private Equity													-	0.30
Hedge Funds														-

- **Correlation coefficients** measure the degree of co-movement between two asset classes. A correlation of 1.00 indicates that both assets move in lock-step with one another, while a correlation of (-1.00) suggests that the assets move in opposite directions. A correlation of 0 means that there is no relation.
- Diversified portfolios take advantage of the tendency of asset classes to behave in different ways relative to each other. Asset classes with low correlations to one another can be combined to produce portfolios with less risk than any specific asset class displays on a stand-alone basis.

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## Glossary of Terms

- **10-Yr Horizon Return** - The 10-year mean reversion return represents our best estimate of returns over the next 10 years. We assume that normalized P/E ratios and interest rates revert to their equilibrium levels over the next 10-years.
- **Net Average Expected Return** - The average return in the portfolio's distribution of possible portfolio returns, net of indexed management fees. In any one-year period, there is a 50% chance that the return will be below the expected return and a 50% chance that the return will be above the expected return.
- **Net Compound Expected Return** - The median return of possible multi-year portfolio returns, net of indexed management fees. For example, in a ten-year period, there is a 50% chance that the annualized return will be below the median expected return and a 50% chance that the annualized return will be above median expected return.
- **Standard Deviation** - This statistic simply quantifies the expected variability of returns around their mean. Both returns *above* and *below* the expected return are included in this risk measure. There is roughly a two out of three chance that the return in any given year will fall within the range bounded by the expected return plus or minus the standard deviation.
- **Sharpe Ratio** - The Sharpe Ratio is a measure of risk-adjusted returns. It is the amount of return obtained (above the risk-free rate) for each unit of risk incurred; therefore, higher Sharpe Ratios indicate a more favorable reward/risk tradeoff. Mathematically, it is the expected return of the portfolio less the risk-free rate divided by the standard deviation.
- **Lowest Likely Return**— Also known as the Value at Risk (VAR), VAR indicates the lowest return we would expect from the portfolio in 99 periods out of 100. In one period out of 100, we would expect the return to be worse.
- **Downside Probability** - The probability of *missing* the goal return over the period. A 20 year downside probability of 33% indicates that there is a one in three chance of missing the goal return over a twenty- year horizon.

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## VIII. Pension Fund Governance

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## Effective Pension Fund Governance

- ***What constitutes “Best Practices in Pension Fund Governance”?***
  - Management and Oversight
  - Accountability
  - Investment Policy
  
- ***How does pension fund governance affect fund performance?***
  - Bad governance practices have an economic cost of 2% per annum.<sup>1</sup>

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1- Source: “The Three Grades of Pension Fund Governance Quality, Bad, Better, Best” K. Ambachtsheer

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## Effective Pension Fund Governance *(continued)*

- ***What prevents private and public retirement systems from achieving best practices in pension fund governance?***
  - Legal barriers
  - Organizational barriers
  - Competency barriers
  - Scale barriers

### Barriers to Excellence

Rank	Barrier	Cited %
1	Poor Decision Process	98%
2	Inadequate Resources	48%
3	Lack of Focus/Clear Mission	43%
4	Conservatism	35%
4	Insufficient Skill	35%
6	Inadequate Technology	13%
7	Conflicts	8%
7	Difficult Markets	8%
9	Lack of Innovation	5%
9	Suppliers	5%

Source: “Excellence Shortfall in Pension Fund Management: Anatomy of a Problem” by K. Ambachtsheer, C. Boice, D. Ezra, J. McLaughlin

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## Effective Pension Fund Governance *(continued)*

- Four Key Attributes:
  - Trustee Structure – Trade off between “representative” and “expertise”
  - Operating Structure – Deliver results in a cost effective manner
  - Culture – Sense of urgency/high performance team
  - Scale – Bigger is better

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## Effective Pension Fund Governance *(continued)*

- Strong Board of Trustees is critical to an effective governance structure
- Selection process is key
  - Motivation
  - Expertise
    - Think strategically
    - Relevant skill/experience
      - Investments
      - Risk management
      - Audit
    - Actuarial/Human Resources

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## Effective Pension Fund Governance *(continued)*

- KRS Governance: 9 member Board of Trustees
  - 5 elected; 3 appointed; 1 ex officio
  - Investment committee: 5 Trustees
  - Investment expertise noted in one trustee biography
  
- KTRS Governance: 9 member Board of Trustees
  - 7 elected; 2 ex officio
  - Investment committee: 2 trustees and Executive Secretary
  - No investment expertise noted in trustee biographies
  
- Institutional investment best practices
  - Investment committee members with investment expertise.
  - Supplement with education

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## Effective Pension Fund Governance

- What constitutes “best practices in portfolio management”?
  - Active vs. passive
  - Internal vs. external
  - Marketable securities vs. illiquid partnerships
- Creating value through implementation (compensation for risk)
- CIO, staff and external advisors skill set is critical to success
- Is the portfolio behaving as expected? (asset/liability study)
  - Recommended every 3-5 years depending upon policy changes
  - KRS – July 2006
  - KTRS – June 2002, update expected in 2008-2009
- Is the portfolio behaving as expected? (benchmarks)
  - Yes – continue monitoring process
  - No – address the issue with appropriate resources (time, talent or terminations)

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## IX. Board and Investment Committee Structure

# Investment Committee Structure – Peer Return Rankings

System	Assets	Period Ending June 30, 2007			
		1-Year	3-Year	5-Year	10-Year
Pennsylvania Public School Employees Retirement System	\$67,340,997	22.9%	16.9%	14.5%	NA
Louisiana Teachers Retirement System	16,148,730	19.7%	15.0%	14.0%	9.7%
Washington Department of Retirement Systems	69,059,082	21.3%	17.0%	14.0%	NA
South Dakota Retirement System	8,158,169	21.4%	15.9%	13.8%	10.3%
Oregon Employees Retirement System	62,891,942	18.6%	15.6%	13.4%	NA
Missouri State Employees Retirement System	8,129,174	18.7%	14.2%	13.3%	9.2%
Ohio State Teachers Retirement System	72,935,433	20.7%	15.5%	13.2%	NA
California State Teachers Retirement System	172,377,918	21.0%	15.1%	13.1%	NA
California Public Employees Retirement System	251,122,682	19.1%	14.6%	12.8%	9.1%
Virginia Retirement System	56,890,203	20.4%	14.9%	12.8%	NA
Idaho Public Employee Retirement System	11,257,959	20.0%	14.3%	12.8%	NA
Oklahoma Teachers Retirement System	9,651,042	18.5%	12.8%	12.8%	NA
Louisiana State Employees Retirement System	9,351,148	19.2%	13.7%	12.6%	NA
Illinois Teachers Retirement System	41,909,318	19.2%	13.9%	12.5%	9.1%
New York State Teachers Retirement System	104,912,949	19.3%	13.8%	12.3%	8.8%
Kansas Public Employees Retirement System	14,183,073	18.0%	14.1%	12.3%	8.8%
Arkansas Teachers Retirement System	11,636,935	19.1%	14.0%	12.1%	NA
Minnesota Teachers Retirement Association	19,938,882	18.5%	14.0%	12.0%	8.5%
Illinois State Universities Retirement System	15,985,730	18.3%	13.4%	11.9%	8.5%
Minnesota Public Employees Retirement Association	16,718,662	18.3%	13.8%	11.9%	8.3%
Minnesota State Retirement System	15,214,339	18.3%	13.8%	11.9%	NA
Indiana Public Employees Retirement Fund	17,181,295	18.2%	12.8%	11.8%	NA
Arkansas Public Employees Retirement System	5,970,244	18.1%	13.3%	11.7%	NA
Ohio School Employees Retirement System	11,546,062	18.7%	13.8%	11.7%	8.2%
New Mexico Public Employees Retirement Association	13,616,098	18.1%	13.2%	11.7%	NA
Hawaii Employees Retirement System	11,462,417	17.7%	13.3%	11.7%	NA
Indiana State Teachers Retirement Fund	8,987,744	18.2%	12.9%	11.6%	NA
Iowa Public Employees Retirement System	23,217,168	16.3%	12.9%	11.6%	9.0%
Alaska Public Employees Retirement System	7,439,387	18.9%	13.1%	11.5%	NA
Florida Retirement System	134,317,778	18.1%	12.9%	11.5%	8.5%
Delaware Public Employees Retirement System	7,413,370	15.9%	12.7%	11.5%	9.0%
Mississippi Public Employees Retirement System	21,912,350	18.9%	13.1%	11.4%	NA
Maine State Retirement System	11,023,021	16.2%	11.8%	11.4%	7.7%
Maryland State Retirement and Pension System	39,444,781	17.6%	12.4%	11.3%	7.2%
Texas Employees Retirement System	24,460,276	13.9%	11.8%	11.2%	NA
Arizona State Retirement System	28,475,997	17.8%	11.9%	11.0%	8.4%
Oklahoma Public Employees Retirement System	6,640,477	16.4%	11.6%	10.9%	NA
Illinois State Employees Retirement System	12,078,909	17.1%	12.6%	10.8%	NA
Missouri Public Schools Retirement System	31,964,843	16.6%	11.8%	10.5%	NA
<i>Kentucky Retirement Systems</i>	<i>14,228,184</i>	<i>15.3%</i>	<i>11.4%</i>	<i>10.4%</i>	<i>8.1%</i>
North Carolina Retirement Systems	75,953,334	14.8%	10.6%	10.3%	NA
Nevada Public Employees Retirement System	22,701,360	15.0%	11.0%	10.0%	7.9%
South Carolina Retirement Systems	28,048,780	13.4%	8.6%	8.8%	7.0%
Georgia Employees Retirement System	17,516,903	14.7%	9.5%	8.5%	NA
Georgia Teachers Retirement System	53,133,101	NA	9.5%	8.5%	NA
<i>Kentucky Teachers Retirement System</i>	<i>15,492,519</i>	<i>15.2%</i>	<i>9.3%</i>	<i>8.5%</i>	<i>7.1%</i>
Tennessee Consolidated Retirement System	32,365,969	13.2%	9.1%	8.3%	NA
High		22.9%	17.0%	14.5%	10.3%
Mean		17.9%	13.0%	11.7%	8.5%
Median		18.3%	13.2%	11.7%	8.5%
Low		13.2%	8.6%	8.3%	7.0%

*Source: Comprehensive annual financial report published by each represented retirement system for the period ending June 30, 2007.*

*Note: Returns shown for Kentucky Retirement Systems represent only the returns for the Pension Fund. Plans are ranked according to their 5-year performance.*

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## Board Structure – 1<sup>st</sup> Quartile Board Composition

- Pennsylvania Public School Employees Retirement System - 1) Secretary of education 2) State treasurer 3) Executive director of the Pennsylvania School Boards Association (PSBA) 4-5) Gubernatorial appointments 6) Annuitant 7-9) Active members 10) ESP 11) PSBA representative 12-13) Two members of the House of Representatives, one from the majority party and one from the minority party 14-15) Two senators, one from the majority party and one from the minority party
- Louisiana Teachers Retirement System - 1) State superintendent of Public Education 2) State treasurer 3) Chairman of the retirement committee of the House of Representatives 4) Chairman of the retirement committee of the Senate 5) Trustee representing school food service employees 6) Trustee representing state college and university employees 7-13) Trustee from Districts 1-7 14) Trustee representing superintendents 15-16) Retired teachers
- Washington Department of Retirement Systems - 1-2) Two active Public Employees' Retirement System (PERS) members 3) One retired PERS member 4-5) Two active Teachers' Retirement System (TRS) members 6) One retired TRS member 7-8) Two active School Employees' Retirement System (SERS) members 9) One retired SERS member *10-11) Two individuals with experience in defined contribution plan administration* 12) One Deferred Compensation Program participant
- South Dakota Retirement System - 1-2) Teacher members 3-4) State employee members 5) Participating municipality member 6) Participating county member 7) Participating classified employee member 8) Current contributing Class B member 9) Current Class B member other than a justice, judge or magistrate judge 10) County commissioner of a participating county 11) School district board member 12) Elected municipal official of a participating municipality 13) Retired member 14) Faculty or administrative member employed by the Board of Regents 15-16) Head of principal department or head of a bureau under the office of executive management *17) Individual from private or public sector*

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## Board Structure – 1<sup>st</sup> Quartile Board Composition

- Oregon Employees Retirement System - 1-3) *Individual with experience in business management, pension management or investing that are not members of the PERS system* 4) Individual who is either an employee of the state in a management position or holds an elective office in the governing body of a participating public employer other than the state 5) Individual representing public employees
- Missouri State Employees Retirement System - 1-2) Members of the Senate appointed by the President Pro Tem of the Senate 3-4) Members of the House of Representatives appointed by the Speaker of the House 5-6) Appointed by governor 7) State Treasurer 8) Commissioner of Administration 9-10) Active members elected by the active and terminated-vested members 11) Retiree elected by the retired members
- Ohio State Teachers Retirement System - 1) Superintendent of Public Instruction or his/her designee 2) Investment designee of state treasurer *3-4) Investment experts* 5-9) Active teachers 10-11) Retirees
- California State Teachers Retirement System - 1) Superintendent of Public Instruction 2) Controller 3) Treasurer 4) Director of finance 5-6) K-12 classroom teachers 7) Community college instructor 8) School board member or community college board member 9) Retired member 10-12) Public members
- California Public Employees Retirement System - 1-2) Elected by and from all CalPERS members 3) Elected by and from all active State members 4) Elected by and from all active CalPERS school members 5) Elected by and from all active CalPERS public agency members 6) Elected by and from the retired members of CalPERS 7) Elected official of a local government 8) Official of a life insurer 9) Public representative appointed jointly by the Speaker of the Assembly and the Senate Rules Committee 10) State Treasurer 11) State Controller 12) Director of Department of Personnel Administration 13) Designee of the State Personnel Board

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## Board Structure – 1<sup>st</sup> Quartile Board Composition

- Virginia Retirement System - 1-4) *Investment expert* 5) *Experienced in employee benefit plans* 6) Local government employee 7) Employee of a Virginia public institution of higher education 8) State employee 9) Public school teacher
- Idaho Public Employee Retirement System - 1-2) Active PERSI members with at least ten years of service 3-5) *Idaho citizens not members of the system*
- Oklahoma Teachers Retirement System - 1) State superintendent of Public Instruction 2) Director of the state Department of Career and Technology Education, or designee 3) Director of state finance 4-7) *Representatives of investment, finance, or other profession* 8) Representative of higher education 9) Member of the system of non-classified optional personnel status 10) Active teacher 11) Retired member of the system 12) Active teacher 13) Retired teacher

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## Board Structure – 4<sup>th</sup> Quartile Board Composition

- Arizona State Retirement System - 1) Educator 2) Employee of a political subdivision 3) Retired member 4) Employee of the state 5) At large member representing any ASRS member group *5-9) Individual with at least ten years experience as a portfolio manager acting in a fiduciary capacity, a securities analyst, an employee or principal of a trust institution, investment organization or endowment fund acting in either a management or investment related capacity, a chartered financial analyst in good standing as determined by the association for investment management and research, a professor at the university level teaching economics or investment related subjects, an economist or any other professional engaged in the field of public or private finances*
- Oklahoma Public Employees Retirement System - 1) Member of the Corporation Commission 2) Member of the Tax Commission 3) Administrator of the Office of personnel management or designee 4) State Insurance Commissioner or designee 5) Director of State Finance or designee 6-8) Appointed by governor 9) Appointed by the Supreme Court 10-11) Appointed by the Speaker of the House of Representatives 12-13) Appointed by the President Pro Tempore of the Senate
- Illinois State Employees Retirement System - 1) Director of the Governor's Office of Management and Budget 2) The Comptroller 3) Trustee not a state employee who shall be chairman 4-5) Two members of the system (one of whom shall be an annuitant over the age of 60 having 8 years of creditable service 6) Member of the system having at least 8 years of creditable service 7) Annuitant of the system who has been an annuitant for at least one full year
- Missouri Public Schools Retirement System - 1-3) PSRS members 4) PEERS member 5) Retired member of either PEERS or PSRS 6-7) Public members who must residents of school districts included in retirement system, but must not be employees of such districts, nor be state employees or state elected officials

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## Board Structure – 4<sup>th</sup> Quartile Board Composition

- Kentucky Retirement Systems - 1-2) KERS member 3-4) CERS member 5) SPRS member 6-8) Appointed by governor 9) Secretary of State Personnel Cabinet
- North Carolina Retirement Systems – NA
- Nevada Public Employees Retirement System - NA
- South Carolina Retirement Systems - 1) Municipal employee representative 2) County employee representative 3-5) State employee representative 6-7) Public school teacher representative 8) Higher education teacher representative
- Georgia Employees Retirement System – NA
- Georgia Teachers Retirement System - 1) State auditor 2-3) Classroom teachers, not an employee of the Board of Regents of University of Georgia (BRUGA) 4) Director of the Office of Treasury and Fiscal Services 5) School administrator, not a BRUGA employee 6) Active TRS member who is not BRUGA employee 7) Active TRS member who is a BRUGA employee 8) Individual (citizen of Georgia) 9) Retiree *10) Individual with investment experience who is not a TRS member*
- Kentucky Teachers Retirement System - 1) Chief state school officer 2) State treasurer 3-6) Teachers 7) Retired teacher 8-9) Lay trustees (non-teacher)
- Tennessee Consolidated Retirement System - 1) Chair of the Legislative Council on Pensions and Insurance (non-voting) 2) Vice-chair of the Legislative Council on Pensions and Insurance (non-voting) 3) Commissioner of Human Resources 4) Commissioner of Finance and Administration 5) Comptroller of the Treasury 6) Secretary of State 7) Administrative Director of the Courts 8) State Treasurer 9) Director of TCRS 10-12) Teacher representative 13-14) State employee representative 15) Public safety officer representative 16-18) Local government representative 19-20) Retiree representative

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## Board and Investment Committee Structure

- Many of the top performing plans have either boards or investment committees that require investment expertise.
- Investment experience has been defined by similar plans as the following:
- An individual with at least ten years' substantial experience as any one or a combination of the following:
  - A portfolio manager acting in a fiduciary capacity
  - A securities analyst
  - An active or retired employee or principal of a trust institution, investment organization or endowment fund acting either in a management or an investment related capacity
  - A chartered financial analyst in good standing as determined by the CFA Institute
  - A professor at the university level teaching economics or investment related subjects
  - An economist
  - Any other professional engaged in the field of public or private finances.

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## Virginia Retirement System Case Study

The Virginia Retirement System administers a defined benefit plan, a group life insurance plan, a deferred compensation plan and a cash match plan for Virginia's public sector employees.

Nine members serve on the VRS Board of Trustees. Their appointment is shared between the executive and legislative branches of state government. The Governor appoints five members, including the chairman. The Joint Rules Committee of the Virginia General Assembly appoints four members. The General Assembly confirms all appointments. Of the nine Board members, four must be investment experts; one must be a local government employee; one must be an employee of a Virginia public institution of higher education; one must be a state employee; and one must be a public school teacher. The public employee one must be a local government employee; one must be an employee of a Virginia public institution of higher education; one must be a state employee; and one must be a public school teacher. The public employee members may be either active or retired.

The Virginia Retirement System also utilizes an Investment Advisory Committee which supports and advises the Board of Trustees in matters of investment policy, asset allocation and manager selection. The Investment Advisory Committee members are profiled on the next page.

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## Virginia Retirement System Case Study

- Joe Grills - Committee Chair, Former CIO, IBM Retirement Funds
- Erwin H. Will, Jr. - Committee Vice Chair, Retired, Chief Investment Officer of VRS and Retired, President of Capitoline Investment Management
- Christopher J. Brightman - Chief Executive Officer of the University of Virginia Investment Management Company (UVIMCO)
- Patricia Gerrick - Deputy State Treasurer/State Investment Officer for the North Carolina Department of the State Treasurer
- Deborah Allen-Hewitt - President, Rutledge Research
- Donald W. Lindsey - Chief Investment Officer, The George Washington University
- Stuart A. Sachs -Retired President, Sovran Capital Management
- Rod Smyth - Chief Investment Strategist, Riverfront Investment Group
- Hance West - Managing Director, Investure

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## Appendix I. Consulting Team Biographies

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## Consulting Team Biographies

### **Richard P. Marra**

Rich is the Director of Corporate Retirement Plans and a Principal Consultant at Hammond Associates. He is a 1983 graduate of Boston College with a BS in Management, concentration in Accounting. Rich is a Certified Public Accountant in the state of New Jersey; status is currently retired. Prior to joining Hammond Associates, Rich was appointed Assistant Treasurer in 1990 and Director of Pension Investments in 1997 at Smurfit-Stone Container Corporation. During the 15 years as Assistant Treasurer he was responsible for managing the capital markets activity of Smurfit-Stone Container Corporation including equity issuance, public debt issuance, asset-backed security issuance, private placement debt issuance and interest rate risk management. During the 9 years as Director of Pension Investments he was a member of the Administrative Committee of the Retirement Plans at Smurfit-Stone Container Corporation, which is responsible for managing investment policy and strategy for \$2.0 billion of defined benefit assets in the United States plans; \$690 million of defined benefit assets in Canadian plans and \$1.1 billion of defined contribution plan assets. Prior to working at Smurfit-Stone Container Corporation, Rich was employed by publisher Simon & Schuster and by the accounting firm PricewaterhouseCoopers. Rich is also a member of the Board of Directors of WestBridge Bank and Trust, located in Chesterfield, Missouri.

### **Jerry V. Woodham, MBA**

Jerry is a Director of our Public Retirement Practice and is a Principal Consultant at Hammond Associates. He holds an MBA in Finance from Chapman University as well as a BS in Economics from the University of Missouri. Before joining Hammond Associates, he served as the Chief Investment Officer for the San Diego County Employees Retirement Association, a \$5.0 billion plan with \$300 million in direct alternative investments. In addition to his experience at San Diego, Jerry spent twenty years working as Chief Investment Officer for two university endowments, Washington University and St. Louis University. From 1996-2001 he served as Treasurer and Chief Investment Officer at St. Louis University where he was responsible for managing the institution's endowment and operating funds, which totaled \$1 billion and included more than \$200 million in direct alternative investments. From 1981-1996 he served as the Treasurer and Chief Investment Officer at Washington University. At that time endowment assets exceeded \$3 billion, including nearly \$500 million in direct alternative investments. In addition to his Chief Investment Officer positions, he also spent seven years (1989-1996) on the Commonfund Alternative Equity Committee. Jerry has served as Board member and Chairman of the Board for Firststar Mutual Funds, and as President and Chairman for Mercantile Mutual Funds. He has also served as a member of the Investment and Finance Committees for the Missouri Historical Society and Mary Institute and Country Day School.

### **Timothy D. Westrich, CFA**

Tim is an Associate Consultant at Hammond Associates. He holds a BSBA in Finance/Banking and Real Estate from the University of Missouri. Prior to joining Hammond Associates, Tim was an Analyst in the Investment Banking department at A.G. Edwards, working in the Financial Institutions and Real Estate Group. Prior to joining A.G. Edwards, Tim was an Analyst in the Public Finance department at Edward Jones. Tim has earned the Chartered Financial Analyst (CFA) designation and is a member of the CFA Institute and CFA Society of St. Louis.

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## Important Disclosures

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